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DIAGNOSIS AND MANAGEMENT OF THE ALLERGIC CHILD *

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My purpose in this paper is to present a method of studying and directing the management of the allergic child from the standpoint of protein hypersensitiveness. Observations in both the experimental and clinical phases of this field have led to certain modifications in practice that may be of interest. I shall not quote extensively from the literature, for that would be foreign to the purpose of this paper.

At the outset, it is necessary to define the term "allergy" as it will be used here. This term was first utilized by Pirquet and Schick to designate an altered reaction of the body to a foreign substance, whether purely protein or bacterial in nature. Its meaning in late years has become so broad as to include a large variety of altered reactions, such as those incident to tuberculosis, scarlet fever, rheumatism and other diseases. In the present studies its meaning is limited to specific hypersensitiveness, clinically manifested as bronchial asthma, hay-fever, infantile eczema, urticaria and certain gastrointestinal disturbances. Explanations for the allergic state have been sought on other grounds because results have not been entirely satisfactory. I believe that the years will prove, however, that these failures were due to the lack of information in regard to the proteins and their ability to bring about a reaction under certain circumstances, rather than to an error in the original premise that specific protein hypersensitiveness is the cause of allergic conditions.

When a patient is presented for study, the first step is to determine, in a general manner, whether or not the problem to be dealt with is an allergic one. If a history is given of recurrent bronchitis or pneumonia with low pyrexia, or if the child sneezes every morning on awakening or coughs a great deal at night, and these conditions are paroxysmal, there is a suggestion of respiratory allergy. If a child develops sneezing or coryza in the spring or in August, there is a suggestion of hay-fever. If a history can be obtained of infantile eczema or recurrent attacks of urticaria, an allergic origin is suggested. Even definite eczemas are not necessarily allergic if they are limited, for example, to a particular area and never spread to any other part. With a certain amount of experience, after obtaining such a general history, one can determine with a fair amount of accuracy whether a child is allergic. These general aspects are important, for otherwise many cases might be studied for protein hypersensitiveness only to be rewarded with negative results.

Historical data are of great importance; in some cases, indeed, the treatment is largely dependent on information that can be gleaned from the history. As I shall have occasion to reiterate many times, knowledge in this field is comparatively limited, and the process must of necessity be empiric. To be of any assistance, then, the history must be most comprehensive. I shall consider it from various angles.

FACTORS IN DIAGNOSIS

Family History.—Material gathered from family histories is not strictly of importance in the individual case but has been utilized in the discussion of the still moot question as to whether allergy is an hereditary disease or whether there exists in certain individuals a predisposition to the acquisition of protein hypersensitiveness which may be compared with the present attitude toward tuberculosis.

Therefore, if one is interested in this phase, there are just a few precautions to note. It is difficult to gather precise information when taking a family history. The physician's mind should be unbiased and he should exercise care not to force information that will suit his own views, for it is a simple matter to shape questions that will draw equivocal answers.

Specific History of the Child.—All the factors attendant on the onset of the disease should be inquired into carefully: for example, the inquiry should be directed as to the places the patient visits, the first ingestion of certain foods, the introduction of new bedding, or contact with certain animal pets, which all present suggestive data. With asthma, the occurrence of attacks at night may indicate a relation to the bedroom, occurrence in the daytime shortly after a meal may indicate a relation to foods, or it may be a combination of food and some external cause. It is also helpful to get an exact description of the most recent attack and all of the surrounding circumstances.

With eczema and urticaria a general idea of the occurrence of the attacks must also be obtained; whether they occur at night or during the day is important, for it is known that, although eczema and urticaria as a rule are due to the ingestion of foods, nevertheless an individual might have eczema or hives from external causes—as opposed to foods ingested. A striking case is that of a child who suffered from frequent attacks of angioneurotic edema and papular urticaria, yet was found negative to all available protein tests but gave definite reactions to extracts of his pillows and mattress. Further inquiry revealed that his attacks of edema occurred before breakfast and his itching was most pronounced at night. Removal of his pillows and mattress resulted in a complete cessation of the symptoms. One year has elapsed since this observation.

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Relation of Antepartum Period to Sensitization.—It has been demonstrated[1] that it is possible to sensitize actively a guinea-pig fetus in utero. With this factual evidence in hand I[2] later showed that there is a causal relationship in the human subject between the antepartum diet and the sensitization of a human fetus in utero. This has been traced to the excessive indulgence in particular proteins as a result of peculiar cravings which certain pregnant women have. This hypothesis may be offered as a possible explanation for the instances of children who, taking a certain food for the first time, develop an immediate anaphylactic reaction in the form of urticaria, eczema or other manifestations. Hence it is of importance to inquire carefully to the antepartum diet, for here one may find the cause of the allergic state in certain children which may easily correct an early case of eczema or hives. Such evidence must, of course, be corroborated by skin tests. In testing such cases one sometimes discovers potential sensitizations which have been established before birth, to foods with which the child has not yet come in contact. I do not mean to indicate that such an indulgence causes an allergic condition in each instance, for even in guinea-pigs it is impossible to bring about sensitization in each animal. What fundamentally predisposes an individual to the acquisition of sensitization—whether a human being or an animal—has not yet been discovered. I have not at any time suggested that this is the sole manner in which sensitization is acquired; I do suggest, however, that this is one possible way in which a fetus having such a susceptibility may acquire its original sensitization evidenced after birth on first contact.

Environment.—Environmental conditions may also be causative factors in establishing a hypersensitive condition. It has been shown experimentally[3] that guinea-pigs may be sensitized by the direct inhalation of antigenic dusts. As has been described in the paper of Figley and Elrod,[4] castor bean dust, emitted by a castor oil factory, was the direct cause of a large number of cases of asthma in that district. Proximity to stables, chicken farms and other such dusty environments might also be the cause of allergic conditions.

The occupation of the parents may occasionally reveal the cause of the allergy in the child. This was demonstrated in a study on rabbit hair asthma.[5] No rabbit hair could be found in the home of a child sensitive to this substance. The only possible clue was that the father worked in a felt hat factory. On further investigation, it was found that felt is manufactured from rabbit hair. In the process of his work, particles gathered on his clothing and person. The relationship was specifically proved when the child reacted positively to a skin test done with dust taken from the cuff of the father's trousers.

Another instance in which the parent's occupation was the offending cause was that of a butcher whose child was sensitive to various meats. The eczema of the face was traced to the father's kisses. The father had a large moustache which he was in the habit of stroking when his hands were soiled from the handling of meats. After this situation was discovered and the father was instructed to clean his moustache and hands thoroughly before returning home, the child's eczema disappeared.

The home should be investigated for the detection and analysis of all dust-producing articles. It is curious how little people can or will tell about their homes, particularly with reference to objects that are likely to cause trouble. Bed clothes, furniture, floor coverings, decorations of all kinds, toys, personal clothing, pets, rodents, insects and insecticides have all been found to be causative agents in producing this condition.

In other words, since this is a branch of medicine which is still far from perfected, it is necessary to seek as much aid as possible from the history of the patient. After this has been ascertained, it is time to proceed with the skin tests.

THE SKIN TEST

The whole question of the proteins that are used in the skin test is one that requires much inquiry; proteins have not been standardized and it is possible that one is dealing with inactive proteins; on the other hand, reactions are obtained that are occasionally proved nonspecific; the number of proteins is still limited, although the number available has increased remarkably. Furthermore, in my experience, I have found patients who have not reacted to stock proteins—feathers, for instance—but who do react to an extract from feathers out of their own pillows. Another most interesting example of this was recited to me by a dealer in ostrich feathers who reacted to feathers from one locality but not of another. These are all factors of which one must be cognizant, and which will make people less hasty to condemn the lack of success in individual cases studied in this manner. Therefore I reiterate that unless there are available protein extracts of all substances with which an individual is likely to come in contact, in the form of comestibles or environmental factors, it is necessary to seek aid from the history in addition to what can be learned from the actual skin tests.

There are two major methods of doing the skin test, the scratch method and the intradermal method. The latter method is the intradermal injection of a protein solution. The scratch test is performed by applying to a scratch in the skin a drop of tenth normal sodium hydroxide in which is dissolved a minute amount of dry protein.

In favor of the intradermal method, the argument has been advanced that it is more sensitive than the scratch method, especially in cases in which the skin is not readily reactive. However, this argument may be used as well in its disfavor, because certain skins may react too readily, in which event the interpretations are difficult to make and therefore require wide experience and exceptional judgment; furthermore, there have been reported violent reactions and even deaths from the use of the intradermal injections in patients that are exquisitely sensitive. The method is painful, time-consuming, and difficult to perform on a resistant child. Since its results do not offer a greater degree of reliability, it seems to present a greater number of disadvantages than advantages.

The scratch method is simpler to perform and is not painful. A slight scratch—several millimeters—is made

1. Ratner, Bret; Jackson, H. C., and Gruehl, H. L.: Transmission of Protein Hypersensitiveness from Mother to Offspring: V. Active Sensitization in Utero, J. Immunol. **14**: 303 (Nov.) 1927.
2. Ratner, Bret: A Possible Causal Factor of Food Allergy in Certain Infants, Am. J. Dis. Child. **36**: 277 (Aug.) 1928.
3. Ratner, Bret; Jackson, H. C., and Gruehl, H. L.: Respiratory Anaphylaxis: Sensitization, Shock, Bronchial Asthma and Death Induced in the Guinea-Pig by the Nasal Inhalation of Dry Horse Dander, Am. J. Dis. Child. **34**: 23 (July) 1927. Ratner, Bret; and Gruehl, H. L.: Respiratory Anaphylaxis (Asthma) and Ricin Poisoning Induced with Castor Bean Dust, Am. J. Hyg. **10**: 236 (July) 1929.
4. Figley, K. D., and Elrod, R. H.: Endemic Asthma Due to Castor Bean Dust, J. A. M. A. **90**: 79 (Jan. 14) 1928.
5. Ratner, Bret: Rabbit Hair Asthma in Children, Am. J. Dis. Child. **24**: 346 (Sept.) 1922.

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on the skin with a Hagedorn needle. Greatest precaution must be taken to prevent trauma, since the drawing of blood tends to prevent the dissolved protein from entering the lymphatics. If the solvent dries before the protein is completely dissolved, additional sodium hydroxide is applied and care must be taken not to traumatize or irritate the skin at the point where the protein is being dissolved. The protein may be applied and dissolved readily by means of a flat toothpick. It may seem needless to call attention to the fact that test material must be carefully labeled—both bottles and stoppers—to obviate any interchange, and that a fresh applicator must be used for each test.

It is essential in doing the scratch test to have the numerical scratches so arranged that it is impossible to read falsely any given test. In order to accomplish this, as a rule, the number of scratches done at a given time is always continued in the same order; that is, if five tests are done horizontally, a series of five is carried throughout the ensuing tests.

The accurate numbering and labeling of each test therefore is of utmost importance.

Skin Reaction.—The skin reaction varies in intensity in different individuals. If a particular skin is highly reactive, a small wheal will be of little consequence and a positive reaction must necessarily be a typical wheal with definite pseudopods.

In a skin that is nonreactive, just as much care must be taken in the interpretation of the skin reaction, for here even a small wheal of a few millimeters may definitely be regarded as positive. Persistent erythema is often to be regarded as positive.[6] However, in such instances the test must be most carefully controlled and only after repeated corroboration may it be regarded as positive.

Locality of the Skin Test.—Certain areas of the body have been designated as most reactive—the bend of the elbow, for example—and it has therefore been advised that the tests be performed at that point.

In the early days of my work, I noted that the particular area of the body on which the skin test is performed does definitely affect the reaction. If the same protein is tested in as many as thirty different parts of the body there will be all gradations of reactions elicited, from a negative to a definitely positive one. Even so slight a distance as 2 cm. from one scratch to another might give different reactions. My results, therefore, have led to the conclusion that individuals differ markedly, and there is no particular part of the body that is specifically more sensitive in all individuals.

Recently Alexander,[7] working with the intracutaneous method, reported that he similarly has found such a marked variability of sensitive skin areas and that a test might be negative in one area and positive in another. This irregularity of the skin receptivity therefore holds for the intracutaneous and scratch methods.

Suggestive reactions should be repeated in various parts of the body and a responsive area may be found on which more positive results can be obtained.

The Skin-Negative Type.—There are undoubtedly many patients who are sensitive who do not give a skin reaction. In general, this type of case can be diagnosed only by careful clinical investigation and then not too exactly. A special type of nonallergic skin was pointed out by Schloss,[8] O'Keefe,[9] and others in the instance of a child who has intestinal allergy.

A number of years ago, I obtained the following data, which add concrete evidence in clinical form for the assumption that intestinal cases do not always react with positive skin tests: A pair of twins that I had occasion to study were weaned from the breast and put on a milk formula. One twin developed urticaria and the other vomited and had diarrhea. The child that developed urticaria gave a positive skin reaction to milk, beef, beef serum and egg. The other twin persistently gave negative reactions to all proteins over a period of many months of intensive study. Tests were repeated in as many as twenty different parts of the body but the results were always negative. However, clinical evidence for the sensitivity of this child, despite the negative skin reactions, was obtained when egg and beef juice were given, which caused vomiting and diarrhea.

Thus I believe that there is in infancy a gastrointestinal disturbance which is specifically allergic but that in such cases skin tests give negative results. I could cite more cases but none so specifically controlled as that of the twins.

Two other methods for doing skin tests might be mentioned. One method is that of Bloch,[10] in which the test substance is applied directly to the intact skin, the area of application being covered with a piece of linen held in place with adhesive tape. The skin reaction is observed from twenty-four to forty-eight hours later, a positive reaction producing definite redness and swelling.

The other method of importance is that introduced by Matthew Walzer,[11] which is a modification of the Prausnitz-Kustner method. Blood is drawn from the sensitive child. The blood serum is then injected into the normal skin of the parent, and then the regular protein tests are done at these sites of injection. Positive reactions may be obtained in the normal individual as a result of this passive transfer.

Both of these methods are, I believe, of great importance for experimental investigations. They are limited, however, in their general usefulness and cannot supplant the scratch and intradermal methods.

Summary of Skin Testing.—Skin testing cannot be regarded superficially as a simple procedure. A scratch and a bit of protein do not solve the problem. It is an arduously detailed procedure which must be carefully controlled. One must always bear in mind individual variability and the interpretation must be the result of careful weighing of many factors. Despite the limitations, the protein skin test is a method that compares favorably with other diagnostic procedures, such as roentgenograms, Wassermann tests and agglutinin tests, provided it is intelligently interpreted, a caution that applies also to the other methods named.

Complete Diagnostic Procedure.—Every case is studied with all the available proteins, numbering about 300; extracts of all substances creating dust in the home are used for testing as well as occupational substances that might be brought into the home.

In addition, a complete chemical examination of the blood, cytologic study of the blood, roentgenograms of

6. Shannon, W. R.: Cutaneous Reaction in Allergic Diseases of Infancy and Childhood, Arch. Pediat. **41:** 834 (Dec.) 1925.
7. Alexander, H. L.: Variability in Distribution of Allergic Skin Response, Proc. Soc. Exper. Biol. & Med. **25:** 800 (June) 1928.
8. Schloss, O. M.: Allergy in Infants and Children, Am. J. Dis. Child. **19:** 433 (May) 1920.
9. O'Keefe, E. S.: Protein Sensitivity in Children with Negative Cutaneous Response, J. A. M. A. **80:** 1120 (April 21) 1923.
10. Bloch, Bruno: The Rôle of Idiosyncrasy and Allergy in Dermatology, Arch. Dermat. & Syph. **19:** 175 (Feb.) 1929.
11. Walzer, Matthew: Studies in Absorption of Undigested Proteins in Human Beings: Simple Direct Method of Studying Absorption of Undigested Proteins, J. Immunol. **14:** 142 (Sept.) 1927.

the sinuses and chest, Schick, Dick and Mantoux tests, and urinalysis are performed. These procedures rule out any secondary factors that may enter into a proper evaluation of a case, such as foreign bodies in the lungs, mediastinal tumors, tuberculosis, metabolic diseases or infections. Thus a nonspecific is coupled with a specific diagnostic procedure.

MANAGEMENT

Elimination.—As far as possible I attempt to verify the accuracy of the diagnosis by the elimination of the offending substance or substances. During this strict elimination period many complexities arise; for example, despite careful instructions, egg-containing foods may unknowingly be given to a child who is sensitive to egg. It is not enough to eliminate eggs as such, but one must also eliminate French ice cream, cake, pastry, noodles, icings, and all other foods in which eggs are used. To show how difficult is complete elimination, the following case may be cited: A mother had a child suffering from eczema. This child was sensitive to both wheat and eggs, and these substances were eliminated from the diet. For many months the child was free from eczema but recently there had been a moderate recurrence. When the mother was questioned, it was discovered that she had been giving the child Ovaltine, which contains egg. In another egg case it was found that the child ate orange ice, which was later learned to contain raw egg white. And so there are cases of children sensitive to cottonseed who get cottonseed as an adulterant in olive oil, bonbons and other foods, or to nuts which are used in nut pastes and in cookies and cakes, and are not in evidence on inspection.

With asthma due to certain dusts and keratins, it is not sufficient to tell the mother of such a sensitive child to get rid of the substances. It is absolutely necessary to make a thorough canvass of every stuffed article in the house. Instances can be cited of children who had their feather pillows replaced by silk floss or horsehair. Other beds in the same room, or pillows stored in the closets, were found to contain an abundant supply of these substances. The parent of a child who had asthma and was a perennial sneezer insisted that she had completely gotten rid of all feathers in the room and was somewhat obstructive to an investigation of the child's quarters. However, there were found two very small pillows filled with feathers that the boy used on his chair. The elimination of these eradicated his perennial sneezing and asthma. And so with rabbit hair, I had a case of a rabbit hair pillow that was kept in a store room and used on occasions when the child played on the floor.

It is impossible to go into further detail here. It is, however, strongly urged that no stone be left unturned to accomplish the complete eradication of known factors, for only in this way can one be certain that the cause or causes of the child's allergic condition have actually been determined.

Further diagnostic evidence is obtained when specific instances of partaking of an offending substance inadvertently produces an attack or return of the hives or eczema. These instances are clinical proof of the specificity of the inciting factor.

Denaturization of Foods.—The elimination of essential foods is something that might result in serious nutritional difficulty. In some cases I have been successful in utilizing these in denaturized form, accomplished by the simple process of prolonged heating. For example, if a child is sensitive to egg white, eggs that are boiled for thirty minutes are often tolerated. With milk, I have found that children sensitive to lactalbumin are almost universally tolerant of evaporated milk. Children have been kept on evaporated milk for as long as a year until tolerance to raw cow's milk could be established.

Spontaneous Desensitization.—This type of desensitization is one of great interest. By spontaneous desensitization is meant the instance of the child who, because of an intolerance to a particular food, refuses it or vomits it. Only minute amounts of this food will get into his diet, therefore, and in this way a tolerance will be developed. There are many cases of food idiosyncrasy in which this particular natural desensitization occurs, particularly with milk and wheat. However, it is never certain in which case this will occur, for food intolerance may persist for many years without any spontaneous desensitization and the child will continue to get worse and worse.

Specific Desensitization by Mouth.—With foods of a common variety, it is necessary that an increased or complete tolerance be established. Specific desensitization may be brought about by giving carefully graded amounts of the offending substance every day. This is accomplished by carefully regulating the amount of food to be given. For example, if the child is sensitive to milk, drop doses, or even fractions of a drop, of raw milk are given each day, the dose being gradually increased.

If the child is sensitive to more than one food, the foods may be combined in doses each day, and thus given to the child until tolerance is established.

Desensitization by Injection.—Diluted proteins are injected subcutaneously in minute doses, the injection of a dilution being always less than the point of reactivity. For example, if a child reacts to a dilution of 1:1,000, the injection of the protein solution should start with a dilution of 1:10,000, in exactly the same manner as with the present treatment of hay-fever.

The injections are given cautiously and the increase in dosage is very carefully guarded. As one proceeds with this method, one realizes that a reaction at a certain point indicates that no further increase in dosage should be made until the child no longer shows a reaction to that amount.

The choice of the proper method of treatment for a given case must be guided by the individual peculiarities of each patient.

In the case of simple food sensitization in infancy, the best method is elimination plus oral desensitization. An example of this is the case of a child who at 10 months showed a hypersensitiveness to egg. Eggs in all form were eliminated. For a period of two years raw egg white in increasing drop doses was given, and egg-containing foods were gradually introduced. This child has apparently become desensitized, for at present, and she is 10 years old, she is able to take egg-containing foods without difficulty and is skin negative to egg protein.

On the other hand, a patient came to me at 8 years of age suffering from severe asthma and eczema. This boy was found sensitive to milk and egg. In addition to strict elimination I started desensitizing him by subcutaneous injection with milk and egg proteins; this choice was made on account of the severity of the condition and the prolonged duration of the ailment. After a period of four and a half months his tolerance had reached a point at which he could take small

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amounts of these foods. He became skin negative and has remained so to milk and egg over a period of ten years. Six years ago he developed a moderate hypersensitiveness to horse dander, after a visit to a farm. Absence of contact with horses has made this factor one of minor importance. During the past year he developed a slight eczema of the face which was due to a new hypersensitiveness which he appears to have developed to wheat and fish; this was easily controlled. He has remained free from asthmatic attacks. It is evident that there is no royal road to any cut and dried cure; one must proceed with these cases always prepared to analyze factors that might be at work.

Severe multiple sensitization is the most baffling form of allergy, and it is futile to hope for any beneficent results to accrue from desensitization. It is necessary to start by rigid elimination of all offending substances; denaturized forms of essential foods must be substituted in order to maintain proper nutritional balance. Then gradually attempts may be made to desensitize to one factor after another. This may be exemplified by a child sensitive to at least a dozen foods and several keratins. After painstaking elimination, which required the most complete cooperation of a very intelligent mother, attacks were minimized, and for the past four years this patient has been free from all attacks. During these years foods were gradually introduced and increases very slowly made. As I retested the boy year after year, I have found that he became spontaneously desensitized to certain foods such as milk and wheat. After this child had been under my care for seven years, I undertook oral desensitization to other foods to which he was still sensitive, by administering a prepared pellet containing a very minute amount of such foods.

With a case of cottonseed asthma, which I first saw three years ago, the complete elimination of cottonseed —found in mattresses, pillows and overstuffed furniture, and cottonseed oil with which the child came in contact through his foods—produced a complete cessation of all attacks for two years. In the third year, since the child still reacted to this protein, I undertook desensitization by injection.

Additional cases observed over a period of years could be cited, but they would not further my purpose. The same specific measures must be applied to the easily handled single sensitivity case and to that of difficult multiple sensitivity. Although the procedure is a complicated one and success difficult to attain, it appears to me that much harm is being done by the too frequent resort to nonspecific measures in the hope of making a short cut to a cure.

CONCLUSIONS

A child suffering from the so-called allergic syndromes of asthma, eczema, urticaria and hay-fever must be viewed from the standpoint of protein hypersensitiveness.

A carefully taken and thoroughly analyzed history is essential. This should include not only the history of a typical attack in its relation to foods, contact with animals, season of the year, time of occurrence, and locality, but also a broad and general history of the case as a whole.

In addition to the history, a complete physical examination and laboratory tests such as chemical examination of the blood, cytologic studies and roentgenograms should be made and from 300 to 400 protein skin tests performed on each child by the scratch method.

I believe that etiologic factors such as sensitization in utero, sensitization by passage of antigen through the intestinal tract, and sensitization through inhalation of antigenic dusts are of paramount importance.

The management of the allergic child and a study of its progress under the careful regimen described here presents evidence that specific protein hypersensitiveness is as basically important to allergy as the tubercle bacillus is to tuberculosis.

One hesitates to extol the virtues of so complex and still immature a subject as allergy, but an analysis of cases studied over a period of years, I believe, sanctions this presentation as a sound therapeutic procedure.

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ACUTE TRANSIENT EPIPHYSITIS OF THE HIP JOINT*

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There is a disease of the hip incident to childhood, which, in view of the frequency of its occurrence, is not given as much textbook emphasis or as much detailed description in collateral writings as it deserves. To distinguish it from acute septic epiphysitis, or septic hip, this condition should be termed acute transient epiphysitis. The clinical course of the latter differs so decidedly from that of the former that I believe it should be recognized as an entity with its own classification. Certainly, a different method of clinical management is indicated.

Much emphasis has been given to destructive septic epiphysitis of the hip, no doubt owing to the fact that it is attended by profound illness and prone to be followed by permanent disability and deformity. Acute transient epiphysitis of the hip as described here causes a child to be sick, creates temporary or permanent deformity depending on the management, and is of a proportionately high incidence. It is not, however, dangerous to life, nor is serious disability likely to follow its occurrence if the cause of the infection is promptly removed.

My interest in this disease was occasioned by dissatisfaction over the use of the term "acute arthritis" and by a desire for a somewhat more definite diagnosis in certain cases of hip-joint complaint in children. After more careful study of the roentgenograms of the neck of the femur near the epiphyseal line in the so-called acute arthritic hips in children, a rather constant disturbance in bone texture was seen. After noting the clinical course in a number of these patients and following changes about the hip by roentgenogram, I now question very much whether there occurs a primary infectious arthritis of the hip joint in children, beginning within the joint space itself.

The upper femoral epiphysis is a point of unusual physiologic activity and physical stress. The blood is supplied to this area by means of minute, looped vessels passing through a vigorous bone growing center. The hip joint with its multiple motions in an active child is more than ordinarily susceptible to trauma. The character of the blood supply, then, plus even slight trauma, invites infectious infarcts or pyemic plugs into this epiphysis, with consequent disease.

* Read before the Section on Orthopedic Surgery at the Eighty-First Annual Session of the American Medical Association, Detroit, June 27, 1930.

There is now universal interest in more accurate differential diagnosis of the various hip-joint complaints and it becomes an increasing comfort to be able to place each disease or disorder of this joint more promptly into the category to which it belongs. Doing this allows a reasonably accurate prognosis, determines a more or less fixed course of clinical management and gives relief to the physician and the family, if that specter, the tuberculous hip, can be ruled out.

Acute transient epiphysitis of the hip has its highest incidence before 10 years of age. It attacks children who are vigorous and active, and there is little or no prodromal period of indisposition or declining health. Symptoms localize rather promptly to the hip joint and there is sharp muscle spasm, flexion deformity and guarding of the area. Some fulness in the structures about the joint occurs, depending on the extent and virulence of infection and on the amount of exudate in the joint in a particular case. Some of the children complain vaguely for a time and continue ambulatory; others are quite sick when first seen and are unable to bear weight on the affected limb.

Over a period of eight years at the North Carolina Orthopedic Hospital, admissions for various hip diseases were recorded in about the following ratio: tuberculosis, 45 per cent; Legg's disease, 11 per cent; coxa vara of adolescence (admission age limit to the hospital is 14 years), 4 per cent; acute septic epiphysitis, 12 per cent, and acute transient epiphysitis, 28 per cent. These figures show the comparatively high incidence of the last named disease in an average clinic or practice.

Fig. 1.—Multiple small abscesses on metaphyseal side of epiphyseal line; mild joint reaction.

The observations in this paper are based on a study of seventy-seven cases of acute transient epiphysitis of the hip. The average age of the patients has been 7½ years. The average duration of the symptoms before admission to the hospital was seven weeks. The average admission temperature was slightly more than 100 F., and elevation of temperature was noticed for five weeks. The average leukocyte count on admission was 15,000, with polymorphonuclear cells 81 per cent. The average time of duration of any symptoms, local or general, after admission to the hospital was six weeks. The right hip was found infected in twenty-four cases,

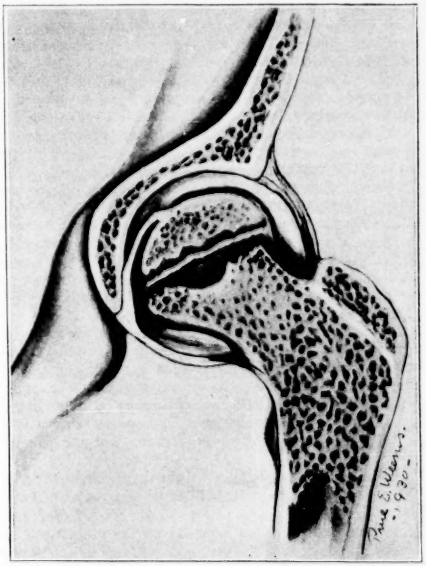

Fig. 2.—Central abscess at epiphyseal line with moderate amount of destruction and joint reaction.

the left hip in twenty-four cases, and both hips in three patients. The disease occurs more frequently in males than in females, about 2 to 1.

A definite focus of infection was found in practically every case. One child had a sore on the foot which seemed to be a source of infectious metastasis, and several children had recently had some of the infectious diseases of childhood; but the chief source of infection was found to be the tonsil. Early remission of symptoms followed tonsillectomy in 82 per cent of the patients.

A simple transient epiphysitis should be suspected in a child presented with a comparatively slow developing hip complaint, with the local and general symptoms outlined, when he has diseased tonsils or some other outstanding focus of infection or has recently had one of the infectious diseases. There may be an occasional history of intermittent attacks of lameness in a hardy child before his family considers him sick enough to demand hospital care.

The roentgenogram in this disease is not altogether diagnostic. On first examination in some of the cases of this series, the roentgenograms were interpreted as being negative. In the same cases, a few days later, enough absorption had taken place along the epiphyseal line to allow a reading of destructive change in the bone

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texture and sufficient exudate had accumulated to alter the joint outline. This change in mild cases is not outstanding; in others it is very definite. With small infected infarcts lodging near the epiphyseal line, the amount of destruction resulting depends on the factors of virulence, resistance and protection. Roentgenograms may show a localized abscess or absorption all along the metaphyseal aspect of the epiphyseal line. An abscess may develop, showing lines of absorption down into the neck of the femur, and in one case it tracked to and involved the trochanteric epiphysis. Sometimes the abscess forms on the epiphyseal side of the epiphyseal line and burrows through the head toward the joint. A certain amount of exudate and reaction are present, showing thickening of the overlying joint structures.

Treatment in these cases consisted of rest in bed, traction to overcome muscle spasm and deformity, and removal of infectious foci. The average period in traction for the hospital cases was five weeks. When joint symptoms cleared up, no further restriction was remained well.
placed on the child and weight bearing was soon resumed. The patients treated have been followed a sufficient length of time to determine that they have

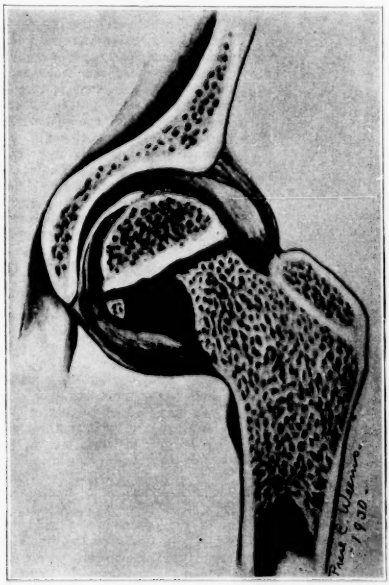

Fig. 3.—Abscess, inner aspect of neck of femur at the epiphyseal line; considerable destruction of bone and joint reaction.

Checking these hips by roentgenograms in follow-up work showed the femoral heads becoming a little more gross in appearance as compared with the normal, and the neck slightly thicker and broader. The head shows an increased superior-inferior diameter, particularly in the outer aspect. This gives one the impression of growth stimulation by low grade infection near a growing center.

No appreciable difference in the length of the legs has been noted and the hips have recovered with normal function. A hip requiring drainage should not be classified as transient epiphysitis.

SUMMARY

Acute transient epiphysitis is a common cause of hip complaint in children. It is usually provoked by mild trauma. It may be suspected in a child complaining of pain about the hip if he has diseased tonsils or has recently had an acute infectious disease. Eighty per cent of my cases were associated with diseased tonsils.

Carefully made roentgenograms will show small abscess formation and absorption about the epiphyseal line.

The treatment consists of the removal of infectious foci, rest from weight bearing, and traction on the lame limb.

Duration of the disease is from a few weeks to a few months, and if prompt treatment is instituted, children recover without any disturbing changes in the hip joint.

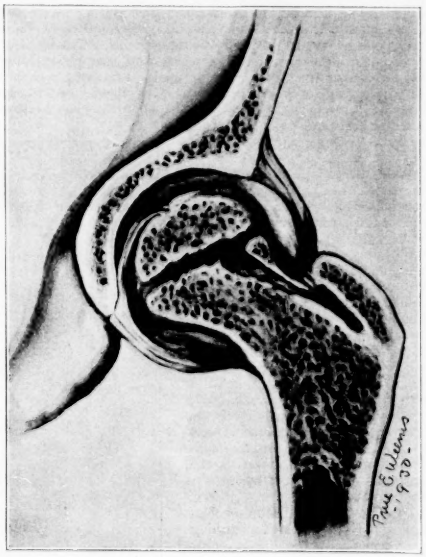

Fig. 4.—Abscess formation, outer aspect of neck of femur at epiphyseal line with joint reaction and infection tracking to trochanteric epiphysis.

15 West Seventh Street.

ABSTRACT OF DISCUSSION

DR. PHILIP LEWIN, Chicago: It is probable that many of these cases have been overlooked, principally because they have not been looked for. Dr. Miller has been looking for them and has found seventy-seven cases. When one considers his figures of all hip cases examined during this period, acute transient epiphysitis occurring in 28 per cent, one may be certain that many are being overlooked. The profession is indebted to Dr. Miller for a term that will take out of the large classification of hip conditions a certain definite condition and put it in its own little "cubbyhole." In every branch of medicine, this is an

annoying to man in the vicinities of Dallas and Fort Worth, Texas. They were troublesome especially in business buildings. Persons in department stores, grocery stores, a railroad office, a motion picture theater, federal buildings, and houses adjoining restaurants were annoyed by bites. In one office building the parasites were present on the tenth floor. Bishopp attributes the advent of the mites to migrations of rats and to the tremendous increase in their number during 1920 and 1921.

INCIDENCE AND ORIGIN OF "RAT MITE DERMATITIS"

Approximately three years ago, three members of a family consulted one of us (B. S.) for a skin eruption which had been diagnosed as scabies by a local physician. When these persons reported to us the eruption had not been influenced by various forms of sulphur medication. The dermatitis presented by the father and mother might easily have passed for a mild infection of *Sarcoptes scabei*. The third member of this family, a girl, aged 18 months, presented a diffuse, extremely pruritic, papular eruption over the body with secondary excoriations and pustules. On the face, neck and scalp a few scattered papules were present. The

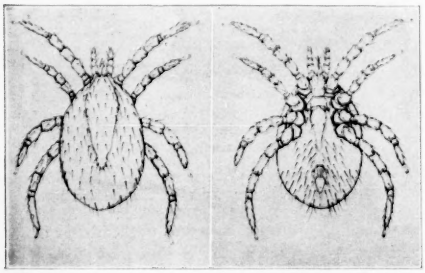

Fig. 1.—Dorsal and ventral view of a female specimen of the tropical rat mite.

latter finding eliminated the possibility of scabies. A search of the patient's apartment revealed a heavy infestation of mites. Specimens were collected and identified by one of us (W. E. D.) as the tropical rat mite, *Liponyssus bacoti*. They were found on the walls of the room, on the bed of the child, and on the child's body. Many of them were engorged with blood. Inquiries revealed the fact that five additional families of the apartment house were affected with bites of these parasites. Since then, as many as 200 additional cases of this acariasis have been brought to our attention. Approximately 100 persons reported for treatment of the skin, and as many reported by telephone to the United States Bureau of Entomology. The frequent occurrence of cases of the condition caused us to adopt the popular name "rat mite dermatitis." According to the case histories there was a wide variation in the kinds of places where bites were received.

Theaters.—In our private practice (J. B. Shelmire and Bedford Shelmire) women were seen who had visited a local motion picture theater. On them there were groups of papular and urticarial lesions, which were confined to the backs of their thighs and legs. An investigation of the theater revealed an infestation of tropical rat mites. The building was fumigated with hydrocyanic acid gas, with the result that cases ceased to be seen at our office. Several months after the fumigation other persons having evidences of such bites were seen at our office. Some of them had visited the theater that had been fumigated, and others had visited another theater in the same neighborhood. We were impressed with the origin of the bites of these persons. It seemed that the semidarkness of the picture theater was favorable for the mites to bite. We made inquiry of Dr. J. C. Michael of Houston, Texas. He states that he has seen about a dozen cases of eruptions of this type in which there was a history of visits to motion picture theaters. Bedbugs were excluded in all instances.

Baylor Clinic.—In the clinic building of Baylor Hospital a mild infestation of tropical rat mites caused five nurses and twelve patients to present evidences of bites from these parasites. The mites were found in the drawers of a desk and on the walls near hot water pipes. In the department of bacteriology, some distance from the clinic building, the mites were present during the spring months of the past two years. Three workers in this laboratory presented evidences of bites and called attention to the painful sensations that were produced by the feeding of the mites. When such sensations were felt, these men were able to find the mites and to remove them from their bodies.

Department Stores.—In several instances, rat mites have bitten the employees of department stores. During a period of three months, nineteen girls working in one department store were seen with such skin eruptions. The bites were received shortly after a large number of rats were trapped or poisoned. When rats were destroyed, the mites were forced to find other hosts for their meals of blood. The bites on persons often follow campaigns for destruction of rats. We have observed them on workers in seed stores, hardware stores, a shoe shop and a restaurant.

Private Dwellings.—Our observations indicate that in Dallas the mite is well established in many residences and apartments. At some of the locations, persons have been annoyed during successive years. At other locations, living quarters are vacated on account of the mites. In one instance the mites caused five families to move from an apartment hotel. These vacancies resulted in a loss of rent which amounted to $1,000. The loss represented 20 per cent of the income of the hotel for a period of three months. It is seen that the rat mite problem is one of economic importance as well as one of interest to physicians and biologists.

During the past three years, approximately fifty persons affected with the bites of rat mites were seen in private homes. From telephone calls requesting information on these parasites we estimate that as many more persons did not report to physicians. In our opinion about one half of the number of persons received bites in the vicinity of their homes. Some of the patients found the mites when biting sensations were felt and were able to submit specimens for identification. Others did not suspect mites as the cause of the skin eruption and did not look for them. When mites were not found by the patients, we made visits to their residences. At such locations we were often able to find the mites on the walls of the rooms. They were found in the bath room or kitchen but were present in other places where heat was furnished. During low atmospheric temperatures they were found on the walls near lighted stoves.

When persons were suspected of having "rat mite dermatitis" and we were unable to find mites on the premises of the home or about the places of work,

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inquiries were made regarding the presence of sparrows, chickens and other animals. There was seldom any indication that mites of such birds, fowls or animals were concerned in causing the skin eruption. The histories of these cases were correlated with the presence of rats. In some instances rats had been trapped or poisoned. In other instances the mites apparently came from beds abandoned by young rats. From these and other observations we consider rat mites as incidental parasites of man.

Out-of-Town Cases.—A tentative diagnosis of "rat mite dermatitis" was made on eighteen persons residing outside the city of Dallas. In one of these cases the provisional diagnosis was confirmed by finding mites. One of us (W. E. D.) visited a patient from Sherman, Texas, and found mites on the walls and floor of the residence. The mites were identified as *Liponyssus bacoti* Hirst. Five of the other seventeen patients found mites on themselves or in the home but did not send in specimens for identification. The tropical rat mite has been obtained at Sherman, Longview, Henderson, Dallas, Plano and Fort Worth, Texas. From these collections and from the reports of bites it appears to be well established in northern and eastern Texas.

TYPES OF ERUPTIONS

On adults the primary lesions of rat mite bites are small urticarial wheals and papules varying in size from that of a pinhead to that of a split pea. The former lack the central hemorrhagic punctures that are considered characteristic of the bite of the bedbug, *Cimex lectularius*. On young children papules, urticarial welts and frank vesicles are often present. The vesicles are not confined to the hands and feet as in scabies but are diffusely distributed on the affected portions of the body. In the more diffuse eruptions the severe pruritus causes the patient to scratch and this results in secondary excoriations.

On adults the lesions are usually few in number. Often there are no more than from six to twelve lesions grouped about the ankles or on the trunk. Rarely, an adult presents generalized evidence of mite bites. In some of the homes where infants were bitten by mites the adults showed less evidence of the bites. They were annoyed so little that they did not volunteer the information until they were examined. In both adults and infants there is a definite tendency toward grouping of the bites. This is attributed to the piecemeal feeding of the mites.

The sites of predilection are not only those portions of the body which come into contact with the mites but also the areas having clothing to press on the mites. In addition to the face and hands of children, lesions are found about the ankles, belt line, upper shoulders and neck. On women visiting motion picture theaters, lesions occur on the flexor surface of the lower part of the thighs and the upper part of the legs.

In diagnosis, "rat mite dermatitis" must be differentiated from scabies, pediculosis corporis, and bites from chiggers, bedbugs, fleas, grain mites and other blood-sucking insects. In children having vesicular lesions, the eruption must be differentiated from chickenpox. In one of our patients, a little girl of 18 months, the lesions resulted in a quarantine for chickenpox until it was proved that the intensely pruritic eruption was due to the bites of the tropical rat mite. Scabies and pediculosis can usually be excluded on clinical grounds, but in other cases a differential diagnosis depends on the recovery and identification of the mite.

IDENTIFICATION OF MITES

The adult female is illustrated in figure 1. It has definite characters which enable one to identify it. It is more easily identified when the specimen is cleared. In order to avoid the possibility of confusing this species with mites which breed in decaying wood or vegetable matter, or with at least two species of fowl mites, *Liponyssus sylviarum* and *L. bursa*, it is suggested that specimens be sent in for identification. Living mites may be placed in dry vials with small bits of paper. The vials should be well corked to prevent the escape of any of the mites. In selecting specimens for identification, it is desirable to obtain the adult females. They are much larger than other stages of this species. When engorged with blood they are rather clumsy in crawling and are easily transferred to vials with a camel's-hair brush.

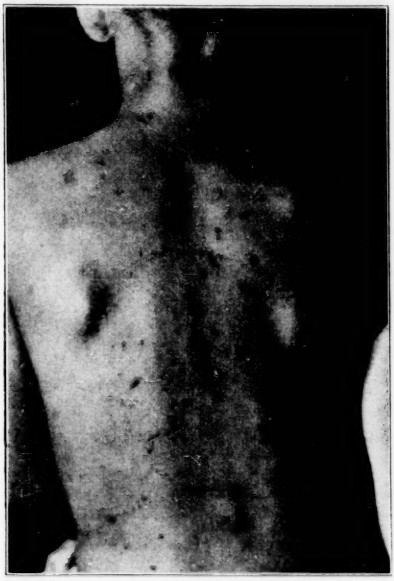

Fig. 2.—Papular lesions from mite bites limited to the back and neck.

HABITS AND LIFE CYCLES OF MITES

When the female mites engorge with blood, they do not remain attached to the skin. They may remain in the hair of rats for several hours, but usually they leave the host and seek cracks, crevices or other protected places. They prefer dark locations where there is no moisture. In such locations a female having a single meal of blood may deposit from three to eight eggs. The eggs hatch in about four to six days. If within twelve days the young mites are unable to find a suitable host, they die of starvation. If the period of incubation is added to the period of longevity of newly hatched mites, it is seen that a period of about eighteen days is necessary for incubation of the eggs and starvation of the young mites emerging therefrom. This means that, following the destruction of all rats, a period of about eighteen days must elapse before the

mites will all have perished of starvation. It is possible that starvation of the nymphal stages of the mites may require slightly longer periods. The female mite is capable of living approximately ten days without feeding.

The newly hatched mites attach to the skin of the rats or mice for approximately two days. Some of them may be observed on the eyelids, feet and thighs of the animals. From many locations on the body, the rat is able to remove the mites by scratching and to devour them. When newly hatched mites become engorged with blood they drop from the animal. At a later time they molt their skins. Following molting they reattach themselves to an animal for another meal of blood. There are apparently four or five feedings and three or four moltings before the larvae attain

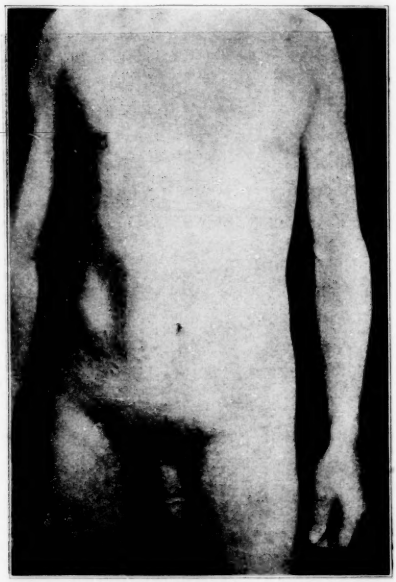

Fig. 3.—Papular lesions from mite bites grouped at the belt line.

maturity. Such engorgements may take place on one animal or on different ones.

On man a mite may obtain a meal of blood from several places. The piecemeal feeding may be attributed to the disturbance of the mites, or to the fact that man is an abnormal host.

ENDEMIC TYPHUS, OR BRILL'S DISEASE

There is endemic in certain sections of the United States a disease which resembles typhus fever and gives a positive Weil-Felix reaction in high dilutions. Most of the records of cases are from the Atlantic seaboard and Gulf ports. The cases occur in mild epidemic or sporadic form, run a definite febrile course of approximately two weeks, and are accompanied by a characteristic erythematomacular and petechial cutaneous eruption. The American form of the disease differs from Old World typhus in its relative mildness and in certain well marked epidemiologic characteristics. The former is clinically indistinguishable from the mild typhus occurring during interepidemic periods in the Old World and Mexico. According to Maxey,[4] the North American strain seems to be derived from the Old World source. In contrast to Old World typhus, there is evidence that the disease is not transmitted from one person to another by the body louse. In the United States there is a summer and fall incidence, and the disease does not seem to be communicated directly from one person to another.

Maxey, an outstanding authority on endemic typhus, or Brill's disease, believes that "a reservoir for the disease may exist other than in man, a rodent reservoir with accidental transmission to man through the bite of some parasitic blood-sucking insect or arachnid. The rodents upon which suspicion immediately falls are rats and mice, and the parasitic intermediaries which are first suspected are fleas, mites, and possibly ticks." He bases this hypothesis on "(1) the uneven focal distribution of the disease, (2) its sporadic occurrence, (3) its apparent lack of direct communicability from an infected person, (4) its association with the place of business rather than with the home, particularly with those premises upon which foodstuffs are handled or stored, (5) the reoccurrence of cases on the same premises after considerable intervals of time, and (6) its seasonal incidence."

POSSIBLE RELATIONSHIP OF THE TROPICAL RAT MITE TO ENDEMIC TYPHUS

With the occurrence of "rat mite dermatitis" in northern and eastern Texas, endemic typhus fever, or Brill's disease, made its appearance. The coincidental advent of the disease and of the parasite causes us to question whether or not there is a possible relationship between them. Reports have been received of the occurrence of 11 proved and 125 probable cases of the disease. This section of the present paper reports the occurrence of *Liponyssus bacoti* in four localities furnishing proved cases of endemic typhus. It reports some evidence of "insect" bites previous to the onset of endemic typhus.

Cases at Dallas and Fort Worth.—During the past year six cases of endemic typhus were reported at Dallas. They were clinically typical of the disease and the blood samples gave a positive Weil-Felix reaction in high dilutions. Three additional cases originating in the vicinity of Fort Worth proved to be typhus. At both Dallas and Fort Worth the tropical rat mites have been of economic importance and of medical interest. Of a large number of persons receiving bites of the mites who reported for treatment of the skin eruption, we do not know of any who developed symptoms of endemic typhus. However, we were able to question only a small number of our patients regarding illness subsequent to their cutaneous eruptions. We would expect only a small percentage of the mites to harbor the organisms of endemic typhus. In Old World typhus only the infected lice are capable of transmitting the disease.

The persons affected with endemic typhus at Dallas and Fort Worth did not recall having been bitten by insects. Two of these persons assisted us in examinations of their places of business. In these locations we were able to find rats infested with *L. bacoti* and rat fleas.

4. Maxey, K. F.: Typhus Fever in the United States, Pub. Health Rep. **44**: 1735-1742 (July 19) 1929.

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Cases at Gilmer.—During the past year clinical symptoms indicated that five cases of endemic typhus occurred in the vicinity of Gilmer, Texas. Also, blood samples drawn from two of these persons during their illness gave a positive Weil-Felix reaction in high dilutions. In the proved cases the patients did not recall whether or not they were affected by "insect bites." A visit was made to the bakery that was operated by these persons. Beneath the floor of the bakery a large number of rats were present in the ground. As yet we have been unable to trap these rats or to obtain parasites from them.

Cases at Longview.—From talks with physicians in the vicinity of Longview, Texas, it appears that many cases of endemic typhus were diagnosed as "short typhoid" or "unknown fever."

Since one of the proved cases of endemic typhus reported at Dallas from Longview, a questionnaire regarding this disease was sent to Dr. C. C. Adams of that city. He reported that during the past three years he has seen approximately fifty cases of what he now believes to be Brill's disease. His last case was the only one tested for the Weil-Felix reaction. According to the report, all the cases had negative tests for typhoid and paratyphoid fever. The blood counts were somewhat higher than in typhoid, but sometimes as low as would be expected in typhoid. About the fifth day a rash came on the skin of some of the patients. The lesions were more marked and considerably more numerous than the rose spots of typhoid. Rigors were nearly always present early in the disease. As compared with typhoid, the bronchial symptoms were more common, pain was more severe, and nervous symptoms were more marked. Occasionally there was considerable embarrassment of the heart and a faster pulse. Until recently Dr. Adams believed that these were cases of paratyphoid of a strain that was not represented in the triple vaccine. With such a vaccine he was unable to get immunity for this disease. About ten of his patients were administered the triple vaccine within from six weeks to six months before they became sick. The duration of his cases was from ten to fifteen days. From these patients no specific inquiry was made regarding "insect bites" prior to the onset of the illness. In the proved case from Longview there was a definite history of "insect bites" seven days before onset of the illness. Serum of his blood was positive for the Weil-Felix test up to 1:640. According to him, the bites were received in the room of a hotel. When the bites were felt he made a search for bedbugs but was unable to find them.

Fig. 4.—Typical grouping of bites on the lower part of the leg. The patient also had a few isolated lesions over the body.

Inquiries were made of the city manager of Longview. According to him, approximately 100 cases occurred there during the past three years. He says that the cases had a course of fourteen days almost to the day. His records show that the greater number of cases occurred during August, October and November. During the early half of last November the cases were as numerous as those of any preceding month. His records indicate also that cases occurred among the workers of at least two stores. Five persons working in a grocery store from March 23 to Aug. 31, 1929, were affected with the so-called unknown fever.

Fig. 5.—Mite bites scattered diffusely over the body, face and scalp. As many lesions were vesicular, the eruption closely resembled chickenpox.

Rats were trapped in stores at Longview and from them we were able to recover specimens of the tropical rat mite. The rats examined were infested also with fleas.

Cases in Other Towns.—In other towns within a radius of 25 miles of Longview, cases of "short typhoid," or "unknown fever," were reported. At Henderson, Texas, at least seventeen patients reported for treatment during the last calendar year. Rats obtained in this locality were found to be infested with tropical rat mites and rat fleas. Some of the towns reporting cases of the fever were not visited by us.

WEIL-FELIX TESTS ON PERSONS RECOVERING FROM ENDEMIC TYPHUS

Following the recovery of five persons with proved infections of endemic typhus, samples of blood were drawn and the Weil-Felix tests were repeated. The latter specimens were sent to Dr. R. E. Dyer, Hygienic Laboratory, Washington, D. C. Two of the samples represented patients who gave positive reactions in dilutions of 1:160 during their illness. Approximately six and eight months after illness the blood samples gave positive reactions in dilutions of 1:40. Samples of blood obtained from two other patients during illness gave positive reactions in dilutions of 1:640. Four and eight months after illness the latter cases were negative for similar tests. A fifth patient, whose blood gave a positive reaction of 1:320 during illness, furnished a sample of blood two months later which gave a negative reaction. From the tests on persons recovering from endemic typhus it appears that the agglutinins are present in the blood stream only for short periods.

The results of the tests on proved cases of endemic typhus were similar to tests made with blood of persons suspected of having endemic typhus at Gilmer and Longview. From these localities nine samples of blood

were obtained from persons several months after their illness. Five of these were negative for the Weil-Felix tests and four of them were positive in dilutions of 1:20 and 1:40. (The positive reactions in dilutions of less than 1:80 are not considered diagnostic of this disease.)

COMMENT

The occurrence of tropical rat mites at Dallas, Fort Worth, Henderson and Longview, Texas, show a coincidental occurrence of these parasites with proved cases of endemic typhus. The history of "insect bites" of one of the patients would seem to strengthen the hypothesis of insect or arachnid transmission of the disease.

According to Bishopp [5] the tropical rat mites occurred at Dallas just after there were migrations of large numbers of rats from the South. Since the rat mites and endemic typhus were found in this section after the migrations of large numbers of rats, one is inclined to attribute the advent of the new parasite and of endemic typhus to these migrations.

Since the report of the occurrence of tropical rat mites in Australia, it is interesting to note that small numbers of mild sporadic cases of endemic typhus have been reported by Howe [5] of Adelaide, Australia.

SUMMARY

1. Approximately 200 cases of "rat mite dermatitis" are reported from Dallas, Texas, and neighboring towns.

2. From persons having evidence of mite bites, and from their residences or places of work, mites were collected and identified as *Liponyssus bacoti* Hirst.

3. At Dallas, Fort Worth, Henderson and Longview, Texas, mites were collected from rats and were identified as *Liponyssus bacoti*.

4. At Dallas, Fort Worth, Henderson and Longview, 11 proved cases and approximately 125 cases of suspected endemic typhus are reported.

5. From tests on persons recovering from endemic typhus it appears that agglutinins are present in the blood stream only for short periods of time.

6. The advent and coincidental occurrence of endemic typhus and the tropical rat mite in northern and eastern Texas suggest that these parasites may be vectors of the disease.

ADDENDUM.—Since July, 1930, nine proved cases of endemic typhus have been seen at Henderson and Longview, Texas. From locations suspected of being the origin of these cases we obtained tropical rat mites and rat fleas. An account of the studies with these parasites will be published in a later paper.

ABSTRACT OF DISCUSSION

DR. CLARK W. FINNERUD, Chicago: I am sure we all feel confident that we should recognize this dermatosis should these rats and their parasites migrate to our respective communities. When confronted with a clinical picture simulating scabies, pediculosis or the bites of other parasites, not being able to demonstrate their causative organism, we shall now be on our guard for a traumatic and urticarial dermatitis, the result of bites of the tropical rat mite. The most important aspect of this communication and study is, of course, that portion which does not concern the dermatologist alone and which as yet is a speculation; I refer to the etiologic relationship of this parasite to endemic typhus.

DR. JOHN E. LANE, New Haven, Conn.: I should like to know how often, if ever, the itch mite has been recovered in these cases.

DR. R. R. SPENCER, Washington, D. C.: I should like to know whether there was fever with the dermatitis, and whether the authors think this has any relationship to typhus fever, and if in the typhus fever patients there is a definite history of bites before the onset of the fever. We in Washington are greatly interested, for we suspect that the tick has something to do with typhus fever. All through the South, and particularly in Washington, we get definite histories of typhus fever following tick bites.

DR. BEDFORD SHELMIRE, Dallas, Texas: Regarding the question of Dr. Lane, the skin irritation is caused by the bites of the blood-sucking mites and is analogous to the bites of the mosquito or other blood-sucking insects. After the mite becomes engorged with blood it drops from the human body to hunt some crack or crevice. The skin symptoms of the individual infested with these mites are not caused from the migrations of these mites within the skin as in an acarus scabies infection. Dr. Spencer asked about fever in connection with the bites of these insects. When bites are very numerous the patient may show a transient fever for a day or two. This was noticed in the case of a little girl quarantined for chickenpox and in two girls working in the Dallas branch office of one of the large mail-order houses. In the latter instance the two victims showed large numbers of bites, and the accompanying fever caused the nurse in charge to send the girls home from work. This mild fever is analogous to that often displayed by a patient with a large number of chigger bites and is not a manifestation of typhus. It is of toxic and not infectious origin.

5. Howe, quoted from Stitt, E. R.: Diagnosis and Treatment of Tropical Diseases, Philadelphia, P. Blakiston's Sons & Co., 1929.

OSTEOMYELITIS VARIOLOSA

REPORT OF THREE CASES *

C. F. EIKENBARY, M.D.
AND
JOHN F. LeCOCQ, M.D.
SEATTLE

The ordinary acute osteomyelitis is sometimes one of the complications attending cases of variola. That it does not occur more frequently than it does is rather surprising, in view of the fact that smallpox is usually accompanied by more or less suppuration. This ordinary acute osteomyelitis complicating variola will not be discussed in this paper.

However, that smallpox can produce another type of osteomyelitis, nonsuppurative in nature, now seems to be a well established fact. In the obscure deformities, inequality in the length of the upper or lower extremities, it is well to inquire carefully whether variola has preceded the onset of the clinical manifestations of the deformities.

PATHOLOGY

Since the descriptions of Chiari and Mallory, little has been added to the literature dealing with the pathology of this condition.

Chiari,[1] in 1893, made a report of the observations in twenty-two cases of smallpox that had come to necropsy. These patients had died during the three different stages of variola. In 86 per cent of the cases disseminated foci were found in the bone marrow, and these foci had definite variolar characteristics. But these foci did not show any evidence of suppuration. In one case which came to necropsy two months after smallpox, he found that there were still evidences of isolated, nodular, pale foci in the bone marrow. The obliterated structure of the bone marrow was being replaced by granular

* Read before the Seattle Surgical Society, Seattle, May 23, 1930.
* From the orthopedic clinic of the Children's Orthopedic Hospital.
1. Chiari, H.: Ueber Osteomyelitis variolosa, Beitr. z. path. Anat. u. z. allg. Path. **13**, 1893.

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detritus, suggesting that resorption was in progress. In this case there were no evidences of suppuration. It was his belief that these foci in the bone marrow caused the bone pains which often accompany cases of smallpox.

Mallory,[2] in 1894, reported the autopsy observations in three cases of smallpox in which the patients died during the stage of suppuration. His descriptions of the foci found in the bone marrow are quite similar to those given by Chiari.

LITERATURE ON REPORTS OF CLINICAL MANIFESTATIONS

In 1903, Debeyre[3] observed that cases of osteomyelitis complicating smallpox rarely ended in suppuration.

In 1910 and 1913, Musgrave and Sison[4] reported a series of eighteen cases of deformities in adults from

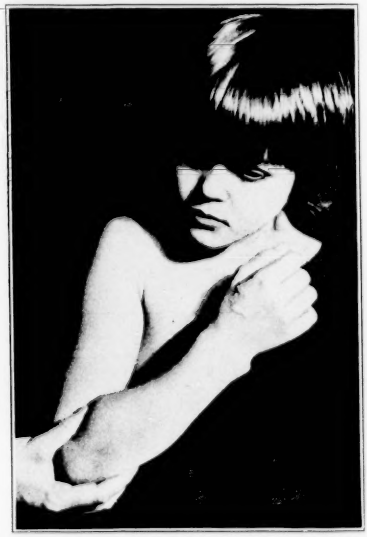

Fig. 1 (case 1).—Elongation of the ulna on the right side.

whom histories were obtained of having had smallpox in childhood and in whom the deformities developed after the attack of variola. The roentgenograms showed extensive destruction in the epiphyseal ends of the long bones. None of these cases showed evidences of former suppurative processes having been present. These cases were all in Filipinos.

In 1912, Cange[5] reported three cases of deformities of the forearms and hands following smallpox.

In 1922, Sheldon[6] reported one case showing marked deformities of the elbow and forearm, and another case which showed involvement of the tibia, fibula and ankle joint.

In 1923, W. L. and C. P. Brown[7] reported two cases, one showing deformities of the forearms and wrists, these having developed following an attack of smallpox three years previously. The roentgenograms indicated destruction of the lower epiphyseal lines of the radius and ulna, and the upper epiphyseal lines in the radius on the right side. The left tibia and fibula also showed evidences of necrotic areas in their distal portions. The right clavicle was shorter than the left. There were no evidences nor history that suppuration or draining sinuses had been present excepting the necrotic area in the tibia. The second case presented a shortening of the right forearm and an overgrowth of the ulna as compared to the radius, causing a radial club hand. There were no evidences of scars, showing that there might have been suppuration. Their report gives an excellent summary of all the literature up to that date.

Fig. 2 (case 1).—Front view, showing increase of "carrying angle."

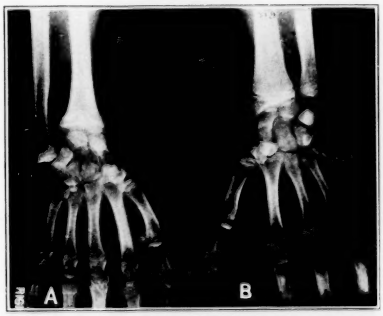

Fig. 3 (case 1).—*A*, right wrist, closure of the epiphyseal line of the radius; elongation of the ulna; *B*, left wrist, normal.

In 1926, Huenekens and Rigler[8] gave a description of the clinical manifestations of osteomyelitis variolosa

2. Mallory, F. B.: Ueber die Verbreitung der Osteomyelitis variolosa in Knockensysteme, Ztschr. f. Heilk. **15:** 253-254, 1894.
3. Debeyre, A.: Osteomyelitis post varioliques, Echo méd. du nord **7:** 182, 1903.
4. Musgrave and Sison: The Bone Lesions of Smallpox, Philippine J. Sc., December, 1910; April, 1913.
5. Cange, A.: Un syndrome ostéomyélitique post variolique, Province méd. **23:** 573-577, 1912.
6. Sheldon, F. B.: The Bone Lesions of Smallpox, Tr. Am. Roentgen Ray Soc., 1922.
7. Brown, W. L., and Brown, C. P.: Osteomyelitis Variolosa, J. A. M. A. **81:** 1414 (Oct. 27) 1923.
8. Huenekens, E. J., and Rigler, L. G.: Osteomyelitis Variolosa, J. A. M. A. **87:** 295 (July 31) 1926.

in its acute stages. They report a case in a boy, aged 6 years, who, some days after the diagnosis of smallpox had been made, developed tender and fusiform swellings of many of the joints in the body, especially those of the extremities. The roentgenograms showed a roughening of the diaphyseal side of the epiphyses as

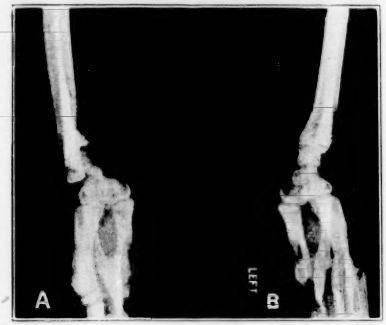

Fig. 4 (case 1).—*A*, right wrist; deformity of the distal portion of the radius; *B*, left wrist normal.

well as roughening of the epiphyseal side of the diaphyses. There never developed evidences of suppuration, and in due course of time the swelling and tenderness subsided. It would be of interest to have a

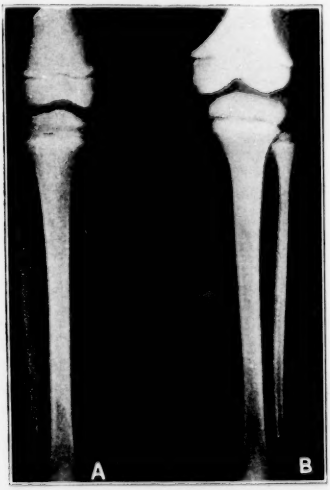

Fig. 5 (case 2).—*A*, right femur, tibia, normal; *B*, left femur, tibia; partial closure of the distal epiphyseal line of the femur; deformity of the diaphyseal portion of the femur adjacent to the epiphysis.

further report from these authors as to the further progress of the case.

In 1929, Lombard [9] reported two cases of deformities following smallpox, one case showing deformities of the elbows and numerous scars showing that suppuration had been present. Therefore, this case should be regarded as an ordinary type of acute osteomyelitis. The second case was in a boy, aged 13 years, who had had smallpox at the age of 2 years. There was deformity of the left forearm due to destruction of the lower and upper ends of the radius. There were also destructive bone lesions of the left knee and ankle. From his description there were evidently no evidences of suppuration having been present. He regarded these as being attenuated forms of osteomyelitis which localized themselves in the juxta-epiphyseal regions, and that the radius is the bone of preference.

CLINICAL MANIFESTATIONS

From the literature cited it is evident that often the diagnosis of osteomyelitis variolosa is not made during the acute stages of the disease. The patients with smallpox who develop the bone complications do not show deformities until after the attack of smallpox. It is obvious that these deformities would not occur in adults who have had smallpox during adult life, because

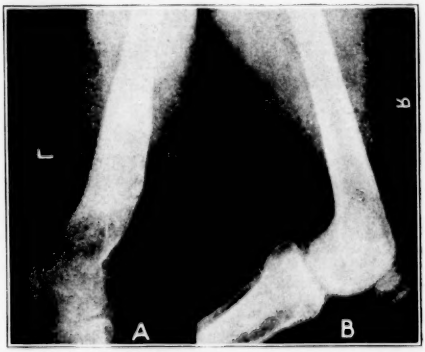

Fig. 6 (case 3).—*A*, left femur, deformity thickening of the distal portion, closure of the epiphyseal line; *B*, right femur, normal.

bone growth has occurred and the virus of the smallpox apparently affects only the epiphyseal lines of the bone. Adults would for that reason not develop these deformities. Therefore, the deformities will occur if variola has been present during childhood or before the closure of the epiphyseal lines has occurred.

The individual consulting the physician does so because of deformity which is present or which may be becoming progressively more marked. In none of the cases that we have seen were there complaints of pain, except because of static disturbances.

REPORT OF CASES

CASE 1.—G. B., a girl, aged 11 years, was brought in because of deformity of the right wrist. There was no history of any previous injury. There was a definite history that she had had an attack of smallpox three years previous to the time of examination. The deformity of the right hand, wrist and elbow began to develop shortly after the attack of smallpox. Examination showed the ulna to be markedly elongated as regards the radius, and produced a typical radial club hand. The right elbow also showed a markedly increased carrying angle due to the elongation of the ulna (figs. 1 and 2). The roentgenograms showed an old destructive process in the

9. Lombard, P.: Osteomyelitis After Smallpox, Revue d'orthop. **16**: 490 (Nov.) 1929.

distal end of the right radius with considerable deformity in the region of the epiphyseal line, and apparently almost a complete closure of the epiphyseal line. Other long bones in the body were not affected (figs. 3 and 4).

CASE 2.—E. L., a boy, aged 7 years, was brought in by his mother because she had noticed that the boy had been developing a limp about two years previously which was progressively becoming worse. There was no history of injury or anterior poliomyelitis. There was a definite history of a mild attack of smallpox at the age of 2 years. Examination

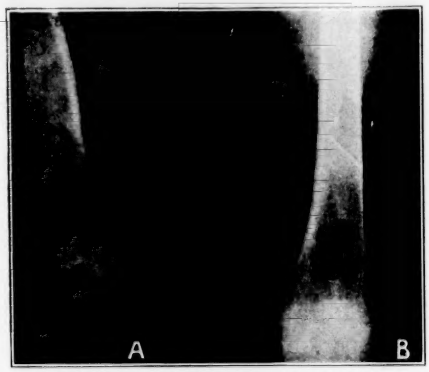

Fig. 7 (case 3).—*A*, left femur, closure of the epiphyseal line and area of decreased density in the distal portion; *B*, right femur, normal.

was entirely negative excepting that there was 1½ inches of shortening of the left lower extremity, this shortening being entirely confined to the femur. Roentgenograms of the left femur showed a partial closure of the distal epiphyseal line and a flaring out of the epiphyseal part of the diaphysis (fig. 5).

CASE 3.—G. S., a boy, aged 14, was admitted to the hospital for treatment of flexion contractures of both hips following a severe tuberculosis of the spine. After his discharge from the hospital he was seen at frequent intervals in the outpatient department. It was noted that he was developing a progressive shortening of the left lower extremity. At 17, this shortening amounted to 2¼ inches and was entirely confined to the femur. Roentgenograms showed a complete closure of the distal epiphyseal line of the left femur and a considerable deformity of the epiphysis. There was also a light area a few centimeters above the epiphyseal line, indicative that undoubtedly there had been a focus in that location (figs. 6 and 7).

A definite history of smallpox in childhood was obtained, and the boy also showed the scars of smallpox on his face.

The fact that this patient had a tuberculosis of the spine might throw some doubt on the correctness of the diagnosis. However, it would be extremely rare for a tuberculous process to show the radiologic signs present in this case. Furthermore, the definite history of smallpox and the characteristic manifestations would make us believe that we are justified in classifying this as a case of osteomyelitis variolosa.

CONCLUSIONS

1. The virus of smallpox undoubtedly causes a nonsuppurative osteomyelitis.

2. The site of election of the virus apparently is in the epiphyseal lines of the long bones.

3. The effect of the virus is to produce an aseptic necrosis which apparently chiefly affects the growing cartilage cells of the epiphyseal lines and causes premature closures.

4. Deformities are caused by the inequality of growth of the long bones.

5. In obscure deformities a careful history of variola in childhood should be obtained.

1011 Summit Avenue.

URETERAL ANOMALIES

REPORT OF A CASE MANIFESTING THREE URETERS ON ONE SIDE WITH ONE ENDING BLINDLY IN AN APLASTIC KIDNEY AND A BIFID PELVIS WITH A SINGLE URETER ON THE OTHER SIDE *

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AND
ROY B. HENLINE, M.D.
NEW YORK

Recognition of anomalies of the ureter has become common with increase in frequency of the cystoscopic and roentgenographic study of patients. The precision with which the entire urogenital system may be brought before one's eyes has clarified many otherwise obscure pathologic conditions. The advent of iopax (sodium 2-oxo-5-iodo-pyridine-N-acetate, introduced as "Uroselectan") as an additional means of studying the func-

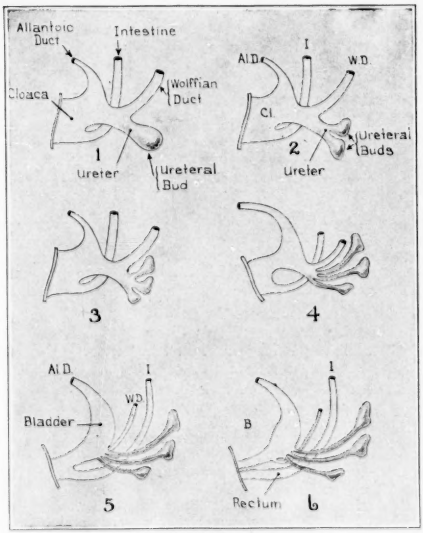

Fig. 1.—Diagram based on the models of Keibel and Felix, attempting to show the probable development of three ureters on one side with separate renal pelves: 1, normal ureteral bud branching from the wolffian duct; 2, hypothetic development of a bifid pelvis or a bifid ureter; 3, hypothetic development of three ureters on one side; 4, a later stage with the three ureters traveling toward the bladder; 5, ureters in the bladder wall; 6, the ureters have separate orifices in the bladder, and the wolffian duct (vas deferens) has completely separated from them.

tion as well as the contour of the urinary tract is another distinct step forward.

* From the James Buchanan Brady Foundation for Urology of the New York Hospital.
Read before the Section on Urology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 27, 1930.

LITERATURE

Before it was possible to study the urinary tract completely, the only reference to ureteral anomalies was made from postmortem examinations. In searching the literature carefully we have been able to find reference to only seven cases that were supposed to present three or more ureters on one side, and in each of these there

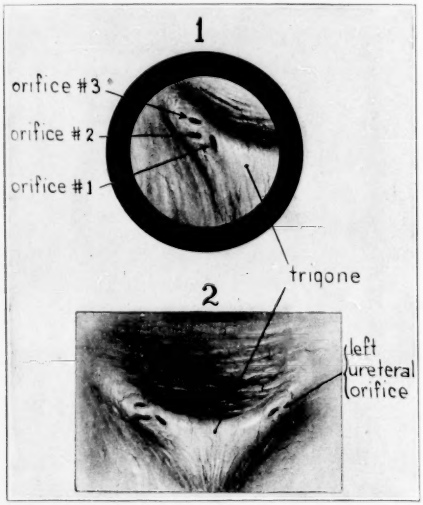

Fig. 2.—Cystoscopic appearance of the ureteral orifices on the right side and the single ureteral orifice on the left side.

seems to be insufficient data to give complete proof of their existence.

In 1675, Molinetti [1] mentioned a case of multiple ureters. Copies of his book are so rare that it was necessary to obtain the information from the Medical Library of the Surgeon General's Office in Washington, D. C. Because of this difficulty, we believe it worth while to publish the original reference:

Quinque ego in muliebri cadauere vesicas olim reperi, ac publice ostendi, quibus par renum numerus respondibat; sex antem prostabant ureteres; quorom unum minor quaelibet vesica excipiebat; duo vero, ut adsolet in maiorem demergebantur, in quam per singulares tubulos urina a minoribus destillabat, & consueta via excernebatur.

Translated it would read:

I once found five bladders in the cadaver of a woman; the number of kidneys was the same; but six ureters projected; a small one was joined with the bladder; two, indeed, as is customary, were submerged in a larger one [emptied into a larger one], in which, by means of separate tubes, urine trickled down from the smaller ones, and was discharged in the usual way.

There were no drawings or further comments concerning this case. Apparently this specimen was one of multiple diverticula of the bladder and an incomplete triplication of the ureters of each side, probably with four ureteral openings in the bladder.

1. Molinetti, Antonius: Dissertationes anatatomicae et pathologicae de sensibus et eorum organis, Padua, 1669, p. 305.

Chopart [2] in 1830 cited a case of Saloman Albert in which he states that he found three ureters from the right kidney and one from the left. "Saloman Albert a vu trois ureters au rein droit d'un homme et un seul a celui du cote gauche." This amount of data is rather inconclusive.

Gould [3] reported two cases of complete bilateral duplication of the ureters in 1903. The second case showed an ovarian vein which emptied abnormally into the right renal vein instead of into the vena cava. The drawings of this case made this ovarian vein appear to be a third ureter, although Gould did not describe a third ureter on either side. This drawing was reproduced in Watson and Cunningham's [4] textbook and referred to as showing three ureters on the right and two on the left side. Personal communications [5] have failed to explain this discrepancy. Papin [6] doubts whether a case has ever been presented which actually manifests three ureters on one side extending into the bladder with distinct ureteral orifices.

Cunningham [5] states that he distinctly remembers an autopsy on a woman in whom there were three ureters and three kidneys on each side. Further information concerning this case could not be obtained.

Fürstner [7] presents a sketch of a kidney from an autopsy specimen which shows five ureters leading from

Fig. 3.—Flat roentgenogram with lead catheters extending to upper and lower halves of double right kidney and third catheter passing to body of sacrum.

the right kidney. These ureters soon fuse in their descent toward the bladder, then divide into two ureters,

2. Chopart, François: Traité des maladies des voies urinaries **1**: 292, 1830.
3. Gould, A. H.: Am. J. M. Sc., March, 1903.
4. Watson and Cunningham: Diseases and Surgery of the Genito-Urinary System, Philadelphia, Lea & Febiger **2**: 70, 1908.
5. Cunningham: Personal communications to the authors.
6. Papin, E.: Anomalies de l'uretère, in Encyclopédie française d'urologie **3**: 948, 1914.
7. Fürstner, C.: Virchows Arch. f. path. Anat. **59**: 405.

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and finally fuse again before they enter the bladder in a single ureteral orifice.

Pavaloff [8] states that Wrany [9] described a case presenting three ureters from one kidney, but the triplication was incomplete. He also refers to a case of Forster in which there were supposed to be four ureters present on the right side. Niemeyer [10] presented a case show-

Fig. 4.—Pyelogram and ureterogram of double right kidney, larger and slightly lower in position than normal.

ing four branches of the left ureter in a child in which many other malformations were present.

One can readily see how uncommon a report of three ureters is in the literature. There is room for doubt whether any of these cases actually manifested three ureters and three ureteral orifices in the bladder on one side.

It is not difficult to understand why anomalies in the urogenital system are so uncommon if one considers its complicated development. The derivation from both mesoderm and entoderm, passing through the stages of pronephros, mesonephros and metanephros, the migration of the kidney from the pelvis to the lumbar region with its rotation around its longitudinal axis, and the complexity of the development of the renal vascular system with its various transformations, permits one to conceive of the possibilities of abnormal development. Patients may go through life without the knowledge that a ureteral anomaly is present unless some pathologic process intervenes. However, pathologic conditions are more prone to develop when an anomaly already exists.

8. Pavaloff, A.: Ueber accessorische Harnleiter, Deutsche Ztschr. f. Chir., 1913, p. 121.
9. Wrany, A.: Osterreichisches Jahrbuch für Paediatrik **1**: 108, 1870.
10. Niemeyer, C. E.: Singularis in foetu prellari recens edito abnormitatis exemplum, Inaug. Diss., Halle, 1814, cited by Schwarz, C.: Ueber abnorme Ausmundungen der Ureteren u. deren chir. Behandlung, Beitr. z. klin. Chir. **15**: 159-244, 1896.

EMBRYOLOGY

To understand thoroughly how double or triple ureters may be formed, one must begin with the earliest development of the ureter. The metanephros, or permanent kidney, first makes its appearance about the fourth week of embryonic life, as a mass of mesodermal cells arising from the caudal portion of the nephrogenic cord. At this time the ureter and entire efferent apparatus makes its appearance as a budding or evagination from the ampullary end of the Wolffian duct close to its point of opening into the cloaca. This ureteral bud grows first dorsally and then turns upward or cranially toward the nephrogenic cells. The end of this bud becomes dilated, forming a cap, which is the beginning of the renal pelvis.[11]

By a process of dilatation, the lower portion of the wolffian duct enlarges and becomes continuous with the adjoining portion of the cloaca. The ureteral bud is thus pulled down and incorporated into the dilated portion of the cloaca, which later becomes the bladder. Thus the two ducts acquire separate openings, the ureteral bud emptying into the cloaca (future trigonum vesicae), while the wolffian duct, destined to become the vas deferens, finds its termination farther down into the prostatic urethra.

Fig. 5.—Attempted pyelogram on right side of third, aplastic ectopic kidney, with lead catheters in place to double kidney above.

During this process the cap at the blind end of the ureteral bud divides into two large branches, a cephalic and a caudal branch, and two or more central smaller evaginations, which form the adult calices and straight tubules of the kidney. This particular step constitutes an important factor in the formation of ureteral anomalies.

11. Kirwin, T. J.: The Rôle of the Ureter in Diseases of the Genito-Urinary Tract, Am. J. Surg. **4**: 355-384 (April) 1928.

If the splitting into branches of the blind end of the ureteral bud is slightly premature or exaggerated and this condition persists, the result will be a cleft or bifid pelvis. If the branches of the ureteral bud begin at a point more caudal or nearer the junction of the ureteral bud with the wolffian duct, a partial or complete

Fig. 6.—Same as figure 5, with two catheters withdrawn from double kidney.

double ureter results, depending on the proximity to the wolffian duct at which the splitting into these branches takes place. Thus the only difference between a diverticulum of the ureter, bifid pelvis, split or Y shaped ureter, fused ureter, and a complete double ureter is one of degree and is dependent on the location of the division into branches at the cap of the ureteral bud.

Felix [12] states that in lower animals two or more ureteral buds are given off separately from each wolffian duct. In the human embryo, however, only the most caudal one normally develops into a ureter. He believes that a double ureter results from two ureteral buds originating separately from the wolffian duct and developing independently. This theory will not explain the more common phenomena of bifid pelvis, split or Y shaped ureter, or diverticulum of the ureter. Since these can all be explained by the previous embryologic sequence, we are inclined to explain our case in that manner.

REPORT OF CASE

M. W., a Negro woman, aged 52, complained chiefly of pain in the right lumbar region extending down into the right leg. The condition was of five months' duration. There was a frequency of urination up to fifteen times a day—none at night—of two weeks' duration. The patient had had dysuria for three or four years. Her family and past history were irrelevant. She had been married twenty years but had no children; the menopause occurred in 1924.

12. Felix: Die Entwicklungs des Urogenitalsystemes, in Keibel und Mall: Handbuch der Entwicklungs Geschichte, 1911, p. 2.

For the past three or four years the patient had had burning urination, which had become worse of late. Five months before examination she was ill in bed with bronchitis and since then had bad pain in the right lumbar region, which extended into her right leg. The pain had been very severe for the past two weeks and was accompanied by frequency of urination and difficulty in holding the urine. Attempts to hold the urine caused nausea.

A stricture of the urethra necessitated dilation before a cystoscope would pass. The bladder mucosa showed moderate inflammation and bullous edema in the trigonum.

For the purpose of elucidation, the ureters on the right side will be described as 1, 2 and 3, 1 being the lowermost on the interureteral ridge, 2 being the middle orifice on the outside of the interureteral ridge, less than 1 cm. above 1, and 3 being above and median to 2 and median to the interureteral ridge. The relative location of these orifices obviously varied with the degree of bladder distention during observation.

A number 6 catheter passed without obstruction to the kidney through ureter 1. In catheterizing ureter 2, a number 6 catheter met obstruction one third of the way up the ureter. After a number 5 bougie had been passed to the kidney, a number 5 catheter passed to the kidney through this ureter. In catheterization of ureter 3, a number 6 catheter passed 11 cm. following preliminary dilation of this ureter.

Sterile specimens were collected from ureters 1 and 2 for culture. From ureter 3 several drops of fluid, believed to be reflux from the bladder rather than urine, were obtained. Specimens were also collected from ureters 1 and 2 for urea

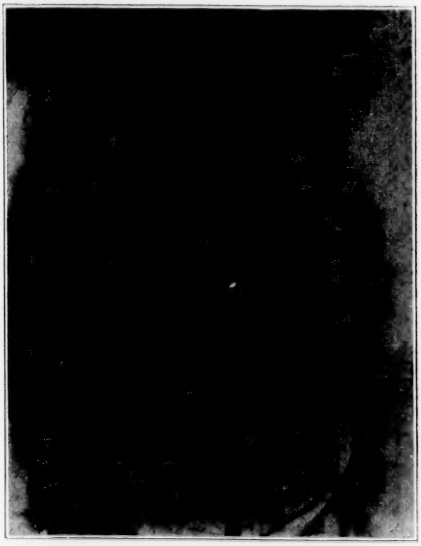

Fig. 7.—Pyelogram of left kidney showing bifid type of pelvis with slight amount of shagginess of calices.

and microscopic examination. One cubic centimeter of phenolsulphonphthalein intravenously appeared from ureter 1 in three minutes, from ureter 2 in two and a half minutes. No dye was obtained from ureter 3. Cultures of urine from ureters 1 and 2 were negative. A number 6 catheter passed to the left kidney pelvis without obstruction; the observations were negative and function was normal.

Roentgenograms were taken before and after injection of sodium iodide solution through each of the three lead catheters.

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The sodium iodide solution did not pass to the kidney pelvis through the third catheter but returned to the bladder. A pyelogram and a ureterogram were subsequently made on the left side.

Flat roentgenograms were subsequently made also in ten minutes, twenty minutes, thirty minutes, one hour and six hours after the intravenous injection of iopax.

Fig. 8.—Roentgenogram taken twenty minutes after the intravenous injection of iopax, showing the bifid pelvis of the left kidney and the upper third of the left ureter more distinctly than the double kidney on the right side. No evidence of third kidney in this picture. (No shadow is cast with this substance if kidney function is absent.)

COMMENT

The case here presented can be explained embryologically (fig. 1) according to the splitting of the single ureteral bud. A pyelogram of the left kidney reveals a bifid or split pelvis. This is probably the result of the persistence of the primary branching of the ureteral bud which has remained in its embryologic form. In other words, instead of these primary branches joining to form a single normal renal pelvis, they have remained separate in their most distal portion. This is the simplest and most common malformation.

Report of Ureteral Specimen

	Ureter 1	Ureter 2	Ureter 3
Character	Hazy	Hazy	
Urea	3 Gm. per liter	9 Gm. per liter	
	Phenolsulphonphthalein		
Appeared	3 minutes	2½ minutes	No time
Per cent.	9.5	6	0
Time	10 minutes	10 minutes	No time

Microscopic Examination of Sediment

Ureter 1	Ureter 2
Wet specimen:	Blood cells, 180 in high power field
Blood cells, 18 in high power field	
Epithelial cells, 26 in high power field	Epithelial cells, 26 in high power field
Some débris	

On the right side, the other extreme occurs. The ureteral bud branched prematurely very close to its origin from the wolffian duct into three main branches, or two main branches and a third sprout from the renal bud.[13] The lower portion of the wolffian duct, to which the ureteral bud is attached, gradually becomes dilated and forms a portion of the cloaca which is destined to become the bladder. Thus the ureteral bud or ureter is pulled down until it empties into the cloaca. Since the branching of the ureteral bud was very close to the wolffian duct, only a slight further dilatation and growth is necessary to have three separate openings into the future bladder.

Apparently only two of the ureters are connected with kidney tissue. The third ureter seems to end blindly or pass to a possible aplastic, ectopic kidney about the level of the crest of the ilium. There appears to be a "proliferative stimulus" which causes the branches of the ureteral bud to follow the nephrogenic cells upward to form the kidney. It is possible that this stimulus was lacking with the third ureteral bud, either because of insufficient nephrogenic cells or because of the distance between this third ureter and the metanephros.

Fig. 9.—Same as figure 8, taken thirty minutes after injection of the substance. Other roentgenograms made with iopax did not cast sufficient shadow to warrant including them in this series.

Clinically, the patient has had no discomfort nor symptoms since the routine dilation of the ureters and lavage of the kidney pelves.

17 East Thirty-Eighth Street.

13. Huntington, G. S.: The Genetic Interpretation and Surgical Significance of Some Variations of the Genito-Urinary Tract, Harvey Lectures, Series 11, 1906-1907.

OBSTRUCTION OF THE POSTERIOR URETHRAL VALVE IN INFANCY AND CHILDHOOD

A STUDY OF EIGHTEEN CASES *

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Urethral valves are the commonest congenital infravesical obstruction and, because they are confined to the prostatic canal, render the condition a male disease. Morphologically these valves may be mucosal ridges, folds, cusps or diaphragms. They are most often attached to the verumontanum and, when so involved, this organ is usually otherwise anomalous. When, by location or size, valves produce symptoms, the primary clinical manifestations are those of obstruction; secondary symptoms are those of uremia. The correct diagnosis is easily made by cysto-urethroscopy. Removal of the obstruction constitutes the treatment. The prognosis is directly proportional to the renal function. A study of eighteen cases of congenital posterior urethral valve obstruction is herewith presented; that all of these patients were children lends particular interest to this lesion.[1]

Fig. 1 (case 18).—Greatly enlarged, elongated and anteriorly bifurcated verumontanum in child who died at birth of tentorial tears. Secondary backpressure, bladder hypertrophy, bilateral ureter dilatation and hydronephrosis are well shown and are especially noteworthy because they developed in utero. In this case the obstructing valves are formed by the anterior bifurcation of the verumontanum.

* Read before the Section on Urology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 27, 1930.

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1. One of these cases (from Bellevue Hospital) was reported previously by Lowsley (footnote 6).

Although Langenbeck [2] is generally accredited with the original description 128 years ago (1802), Young [3] in 1913 was the first surgically to treat the disease. It is noteworthy that of the total of 71 cases reported in the literature to date, only 22 antedated Young's work; these were autopsy observations. Operations were performed in 27 of the 49 reported since Young's original case. With the wider application of urologic methods of diagnosis in juvenile patients with obstructive symptoms or persistent urinary infection, a far higher incidence of urethral valve obstruction will be revealed and, with proper treatment (and such simple treatment), many lives will be saved. Parenthetically it should be added that while valve obstruction will not always be found when indications for complete urologic examination are present, any one of a number of serious or potentially fatal lesions of the urinary tract may be revealed. A liberal attitude toward complete urologic examination in children, particularly when chronic pyuria exists, cannot be overemphasized.

Our present meager statistical data on the incidence of valvular obstruction precludes any estimation of the true ratio of occurrence.

ANATOMY

Structurally, valves may be present only as low ridges; these do not obstruct. More often valves appear as mucosal folds or redundances and in retarding a fluid stream may be cystoscopically observed to balloon into cusp formation. Finally, they may be present as partial or complete diaphragms. In only rare instances, however, have unperforated complete diaphragms been found at autopsy; such a condition is, of course, incompatible with life. On the other hand, the urethral perforation in the diaphragm may be minute, the diameter of a pin, and so cause almost complete obstruction. For convenience, valves have been classified into three types depending on their relation to the verumontanum.

Most valves are contiguous with the verumontanum at some point and usually pass from the anterior end of the verumontanum to the lateral urethral walls (type 1, fig. 1) although in several instances extension from the posterior verumontanum to the bladder outlet has been observed (type 2, fig. 2). Valve segments of the latter type in particular are apt to be multiple; one sometimes finds as many as six or seven folds extending from the verumontanum posteriorly into the bladder outlet. Valves may be unilateral, as I have twice observed; these cause little obstruction. Finally, the valve may be totally independent of the verumontanum, situated either anterior or posterior to this organ (type 3). Such valves are partial or complete diaphragms, occasionally occur on the roof but usually on the urethral floor and, when distended, may simulate a cardiac cusp.

In the presence of valves, the verumontanum is usually anomalous; enlargement and great elongation is the rule. Sometimes the verumontanum extends from the vesical outlet anteriorly for 2 or 3 cm. (fig. 1). When the verumontanum bifurcates anteriorly to create type 1 valves, a deep pouch or pocket is often formed at the apex of the fork and because urethral instruments persistently catch in this fossa, passage to the bladder may be exceedingly difficult or even impossible. Such a finding on urethral instrumentation is diagnostically suggestive.

2. Langenbeck, C. J. M.: Mémoire sur la lithotomie, 1802.

3. Young, H. H.: Practice of Urology, Philadelphia, W. B. Saunders Company **2**: 92, 1926.

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ETIOLOGY

The etiology of urethral valves is unknown. Theorists in this field have believed them to be due to: (1) enlargement or hypertrophy of normal urethral folds;[4] (2) persistence of the urogenital membrane;[5] (3) anomalous wolffian or mullerian duct developments;[6]

Fig. 2 (case 14).—Enormous dilatation of entire urinary tract behind valvular obstruction. The patient was 11 months of age. Destruction of the renal parenchyma by urinary backpressure compression is noteworthy, as is the hemorrhagic decompression cystitis resulting from too rapid emptying of a chronically distended bladder. The morphology of the valvular obstruction merits especial attention. The verumontanum is greatly enlarged, it bifurcates anteriorly to form type 1 valves, and extending posteriorly are several deep leaflets forming type 2 valves. The trigon as well as the bladder wall showed marked hypertrophy.

(4) a fusion of the colliculus with the epithelium of the posterior urethral roof.[7] None of these explanations fit all cases.

PATHOLOGY

The pathologic changes in the urinary tract are those common to all infravesical obstructions. A comprehensive understanding of these changes renders simple the correct interpretation of the clinical symptoms and observations, and indicates the requisites of intelligent treatment. The proximal urethra is dilated. Until prolonged backpressure causes muscular decompensation, the bladder wall shows trabeculation, hypertrophy and sometimes inflammation, and may be the site of diverticulum formation. Often trigonal hypertrophy is pronounced. With decompensation, the bladder becomes a large hypotonic bag. Ureteral and pelvic dilatation occur as the disease advances; urinary backpressure as well as inflammatory changes destroy the ureterovesical valve, so that vesicoureteral reflux is demonstrable in most advanced cases (fig. 3). The ureters may become larger than the colon; the renal parenchyma is frequently compressed to a thin shell. Compression nephritis plus infection accounts for the diminution of renal function so uniformly observed as the disease progresses. It is for this reason that prognostic and therapeutic considerations must be translated into terms of renal function.

SYMPTOMS

The symptoms of urethral valve obstruction are (1) those of urethral blockage and (2) those of renal insufficiency or uremia. Since the history must be obtained from a parent in most instances, elicitation and evaluation of the objective symptomatology is often difficult.

Urinary frequency is the most common symptom and is usually present from birth. With the advent of infection, the child may void every twenty to thirty minutes. In many instances a paradoxical or overflow incontinence may keep the child continually wet. These patients in particular are apt to be diagnosed as and treated for enuresis. I have operated in five such cases.

Dysuria or urinary difficulty is due to the diminished urethral caliber and is often distressing. Hesitancy or sluggishness in starting the stream, together with a dribbling flow, are corollaries of dysuria. The observation of the urinary act in one of these little patients with face purple from straining, evincing considerable pain and often manually compressing the abdomen to force out urine, leaves an indelible impression. One of my patients, a boy of 5 years, learned to compress his

Fig. 3 (case 7).—Cystographic demonstration of enlarged bladder, dilated ureter and renal pelves. The upper urinary tract is filled by sodium iodide reflux from the bladder.

bladder over the seat of a chair in much the same manner as an asthmatic patient obtains thoracic compression over the back of a chair. Dysuria may not appear, however, until some months or years after the onset of frequency. In some instances the distressing symptoms of valvular obstruction do not appear until adult life.

4. Tomaslschew, N.: Ein Fall von semilunaren Klappen der Harnröhre und vergrosserter Vesicula Prostatica, Arch. f. Path. Anat., 1870, pp. 348-365.

5. Bazy, P.: Obliteration de l'urèthre par une valvule congénital en forme de diaphragme, Bull. et mém. Soc. de chir. de Paris **29**, 1903.

6. Lowsley, O. S.: Congenital Malformation of Posterior Urethra, Ann. Surg. **60**: 733-741, 1914.

7. Watson, E. M.: The Structural Basis for Congenital Valve Formation in the Posterior Urethra, J. Urol. **7**: 371-381 (May) 1922.

Congenital Valvular Obstruction of

Case	Age	Chief Complaint	Past History	Gastro-Intestinal Upsets	Fever	Urinalysis: Pus	Urinalysis: Blood	Urinalysis: Albumin	P.S.P.†	N.P.N.†	Creatinine†	Blood Pressure	Physical Examination
1	5 yr.	Low abdominal pains, frequency, dysuria, day wetting, enuresis since infancy	Negative except always wet	0	0	+	0	0	35/20	29.5	1.5	100/70	Fair development; small genitalia; bladder not felt
2	6 yr.	Frequency, enuresis, wetting of clothes since birth	Negative except always wet	0	0	0	0	0	.....	30	1.4	.....	Poorly developed; clothes wet
3	7 yr.	Frequency and moderate dysuria since birth; hematuria once	Negative	0	0	Occasionally	Occasionally	0	20/35	29	1.4	98/72	Slight pain in right loin; pinpoint meatus; bladder not felt
4	11 yr.	Complete incontinence, pyuria, frequency, always wet	Pyuria, always poor urinary control	Occasionally	Occasionally	++++	0	Very faint trace	(1) 0.0 (2) 7½	34	2	.....	Underdeveloped, undernourished, looked sick, clothes wet; residuum 2 oz.; motor and sensory loss sacrals 1 to 5
5	22 mo.	Urinary difficulty since birth; acute retention with distended bladder past 10 hours	Acute retention relieved by catheter once 11 mo. age; urethral discharge since	++	+	++	..	..	...	....	...	.....	Greatly distended bladder; catheter stopped in prostatic urethra
6	10 mo.	Dysuria since birth; bladder always distended	Pyuria and distended bladder since birth	+++	++	++++	..	..	...	55	2.5	.....	Bladder palpable; instruments stopped in posterior urethra
7	2 yr.	Dysuria, pyuria, intermittent fever, frequency, abdominal pains, repeated acute retentions since birth	"Always had bladder trouble"	++	+++	+++	..	..	(1) 0.5 (2) 10	90	3.4	88/62	Sick; bladder distended 2 inches above pubis; instruments stopped at bladder outlet
8	11 yr.	Bladder pain, nocturia 2 or 3 times, frequency	Negative	0	0	+	..	..	21/19	31.9	1.4	104/72	Well developed; bladder not enlarged; no residuum
9	10 yr.	Pain on both sides lower abdomen, frequency every 20-30 minutes, always wets bed, dysuria worse past 3 mo.	Has always had enuresis	+	0	++	..	..	42/22	29.5 30.8	...	126/80	Phimosis, distended abdomen; moderate tenderness right lower quadrant; residuum 10 cc.
10	3 yr.	Frequency, dysuria, enuresis, always wet since birth	Urinary symptoms becoming progressively more severe	0	0	0	..	..	60	28	...	98/70	Bladder not distended; residuum 15 cc.
11	7 yr.	Frequency, enuresis, always wet	Always wet	0	0	++	..	Very faint trace	55	29.1	...	94/70	Emaciated, pale; residuum 2 ounces
12	10 yr.	Enuresis, bed wetting	Nocturnal enuresis five years; wets clothing frequently	0	0	+	0	Trace	..	30	...	118/80	Well developed; tenderness over both kidneys on deep pressure; residuum 1 oz.; clothes wet; cystoscope stopped in prostatic urethra; bladder not felt
13	3 yr.	Frequency, acute retention	Acute urinary retention twice previously; occasional enuresis and wetting of clothing	0	0	+	0	+++	30/30	28.5	...	.....	Bladder distended to 2 cm. below umbilicus; no renal tenderness; cystoscope caught in posterior urethral pocket
14	11 mo.	Constipation	No urinary history; brought to hospital because of constipation; distended bladder directed attention to urinary tract	+	0	0	0	++++	12	42	...	.....	Bladder distended to umbilicus; greatly enlarged ureters palpable; thought to be constipated bowels; anemic, poorly developed
15	1 yr.	Uremia	No history; child brought to hospital in uremia	..	..	..	..	..	..	....	...	.....	Admitted to hospital in uremia; died shortly without complete examination
16	11 hr.	Died 11 hours after birth	....	..	..	..	..	..	..	....	...	.....	Anencephalic monster
17	3 mo.	Distended bladder since birth	.....	++++	+++	+++	..	+	..	....	...	.....	Distended bladder, both kidneys felt
18	1 hr.	Died immediately after birth of cranial injury with tentorial tears	.....	..	..	..	..	..	..	....	...	.....	.....

* All males. † P.S.P., Percentage, 2 hour phenolsulphonphthalein test; N.P.N., nonprotein nitrogen expressed in mg. per hundred cubic centi

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*the Posterior Urethra in Childhood**

Roentgenogram	Cystogram	Cystoscopy	Treatment	Complications	Cause of Death	Follow-Up of Autopsy
Negative	Normal	Small hypertrophic median prostatic lobe; half iris diaphragm on urethral floor anterior to verumontanum, dilated posterior urethra in which instruments caught; marked trabeculation; hypertrophic trigon, deep bas fond; ureteral catheterization negative	Refused; marked improvement following urethral dilation	.....	.....	Patient lost sight of
Negative	Normal	Trabeculation and trigonal hypertrophy +++; extending from posterior verumontanum to left margin of the vesical outlet was a large deep valve; right side normal	None; improvement following urethral dilation	.....	.....	Improvement following dilation
Negative	Slightly enlarged bladder with funnel outlet	Trabeculation ++; dilated bladder outlet and posterior urethra; verumontanum normal with right valve extending anteriorly to urethral wall; spacious urethra	Refused	.....	.....	Patient lost
Lateral deviation of sacrum to right	Irregular bladder, enlarged with funnel outlet	Trabeculation extreme; diverticulum of posterior wall; dilated bladder outlet with several coarse valve leaflets passing from posterior verumontanum to bladder outlet	None; left hospital against advice	Diverticulum	.....	Patient lost
0	0	.....	.....	.....	.....	Patient symptomatically cured by dilation
Negative	Dilated irregular bladder	Moderate trabeculation and trigonal hypertrophy; verumontanum elongated and enlarged with two thick valves passing from posterior verumontanum into vesical outlet	Refused	.....	Uremia	None
Negative	Large bladder bilateral reflux, greatly dilated upper tract	Extreme trabeculation and trigonal hypertrophy; small diverticulum of posterior wall; gaping ureter mouths; large elongated verumontanum with multiple type 2 valves	None; developed fatal diphtheria day before scheduled operation	Diverticulum	Diphtheria	Autopsy refused
Calcified glands to right of sacro-iliac joint	Normal; no reflux	Normal bladder; dilated posterior urethra; enlarged elongated inflamed verumontanum extending from within vesical orifice anteriorly 2.5 cm. ending in coarse type 1 valves with deep pocket in the bifurcation; instruments caught in this pocket repeatedly	Excision by electric cutting current	.....	.....	Urination free and easy; no frequency
Negative	Normal	Trabeculation ++; elongated verumontanum with semidiaphragm cusp on floor 3 mm. anterior to verumontanum; cusp made to balloon out in irrigating fluid; difficult instrumentation	Excision by electric cutting current	Postoperative psychosis; anesthesiophobia	.....	Symptomatic relief following original examination (cystoscopic urethral dilation); cured by operation
Spina bifida occulta defect fifth lumbar	Short funnel filling of posterior urethra	Marked trabeculation, moderate trigonal hypertrophy; dilated posterior urethra; verumontanum elongated, enlarged and anteriorly forks into type 1 valves; instruments caught in pocket of bifurcation	Excision by electric cutting current	.....	.....	Free urination with less frequency; marked improvement following cystoscope dilation
Negative	Normal	Trabeculation ++ with slight trigonal hypertrophy; dilated urethra behind verumontanum with multiple lateral valves extending anteriorly from sides of verumontanum	Excision by electric cutting current	.....	.....	Still some frequency but marked improvement
Spina bifida occulta fifth lumbar down	Normal	Coarse trabeculation with deep cellules; marked trigonal hypertrophy; dilated posterior urethra with median bar formation and valves extending anteriorly from verumontanum; deep pocket of urethral floor in front of verumontanum bifurcation	V excision of median bar and valve excision by cutting current	.....	.....	Symptomatically cured
Negative	Normal	Hypertrophic bladder wall and trigon; coarse trabeculation; dilated posterior urethra with deep valves extending anteriorly and posteriorly from verumontanum; deep pocket anterior to verumontanum bifurcation	Refused; temporarily relieved by indwelling catheter	.....	.....	Refused treatment
Negative	Large bladder; bilateral reflux with angulated ureters; funnel outlet	Coarse trabeculation with many deep cellules; gaping urethral orifices; marked trigonal hypertrophy; dilated posterior urethra and vesical outlet with valves extending anteriorly and posteriorly from verumontanum	Indwelling urethral catheter; cystostomy	Uremia	Uremia	Died 24 hours following cystostomy; autopsy confirmed cystoscopic observations and urograms; marked hemorrhagic decompression cystitis; renal parenchyma reduced to thin shell by urinary backpressure
.....	.....	.....	.....	.....	Uremia	Type 2 posterior urethral valves with bladder dilatation and hypertrophy, bilateral hydronephrosis, hydro-ureter, and renal parenchyma reduced to thin shell
.....	.....	.....	.....	.....	Monster	Anencephalic monster; long large verumontanum with type 1 valves; bladder and upper tract greatly dilated
.....	.....	.....	.....	.....	Uremia	Crescentric mucosal fold overlay bladder outlet; verumontanum large with many type 1 valves; enormously dilated ureters and pelves
.....	.....	.....	.....	.....	Birth injury	Long verumontanum, type 1 valves; greatly hypertrophied bladder with dilated ureters and hydronephrosis; of especial interest because of intrauterine development

meters; creatinine expressed in mg. per hundred cubic centimeters.

Chronic distention of the bladder is often visually manifest by a protuberance of the lower part of the abdomen; frequently the mother or the patient has palpated the vesical mass. Such distention usually causes lower abdominal pain, which is often mentioned as an outstanding symptom. With ureteral and pelvic urinary distention, lateral abdominal or loin pain is sometimes present and in conjunction with frequency, dysuria and pyuria commonly leads to the diagnosis of pyelitis. Renal pain on voiding always suggests ureteral reflux.

Later, as renal damage and functional diminution become manifest, the symptoms are those of uremia in progressive stages. Headache, irritability or languor may be the only neurologic symptoms. Repeated and often severe gastro-intestinal disturbances with anorexia, nausea, vomiting, failure to gain or even loss of weight may totally misdirect attention to the alimentary tract. In the terminal stage, the patient either lapses into fatal uremic coma or dies of an intercurrent infection. Debilitated, these patients are particularly prone to acute respiratory or urinary infections; such infections are usually fatal. Because of the clinical picture and laboratory observations, obstruction of the urethral valve is most often diagnosed as chronic pyelitis, chronic interstitial nephritis or polycystic renal disease.

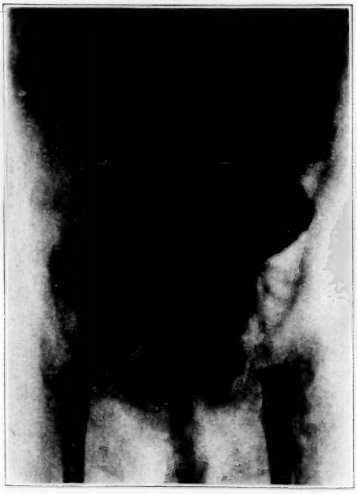

Fig. 4 (case 14).—Cystogram illustrating practically all of the characteristic backpressure urinary tract changes that may result from valvular obstruction. The posterior urethra is greatly dilated behind the obstruction; the bladder is dilated and irregular; both ureters are greatly enlarged, elongated and tortuous and finally — although it does not show distinctly — there is marked hydronephrosis. This patient is 11 months of age and still had uninfected urine, a finding quite different than one would expect.

DIAGNOSIS

The history and physical observations suggest the diagnosis; cysto-urethroscopy confirms it. A partially or completely distended bladder is commonly found. The kidneys are often enlarged and, as I have seen, both ureters palpable. A dry tongue is not the rule until uremia is well developed.

Laboratory examination shows urinary infection in most instances. In advanced disease the urinalysis most often leads to the diagnosis of chronic interstitial nephritis; and a high blood nitrogen retention, diminished blood carbon dioxide combining power and reduced output of phenolsulphonphthalein are usually interpreted as diagnostically confirmatory of nephritis. On the other hand, in four of my cases examined because of dysuria and "enuresis," urinary infection and advanced urinary tract changes had not occurred; urinalysis and chemical examination of the blood were essentially normal.

The correct diagnosis is made by cysto-urethroscopy; cystography often gives considerable additional information and should precede cystoscopy. When the bladder residuum is estimated to be more than 3 ounces (90 cc.), gradual decompression should be instituted. In the diagnosis and treatment of urethral valve obstruction, the same basic principles applied to adult prostatic patients must be even more assiduously observed in children. Decompression and continuous drainage of the bladder usually can be carried out with a number 6 or 7 F. ureteral catheter indwelling in the urethra. When the condition of the patient permits, as indicated by the various clinical and laboratory manifestations of improvement, a cystogram should be made.

With 5 per cent sterile sodium iodide the bladder is filled to the point of moderate distention and roentgenographic exposures (preferably stereoscopic) are made. The resultant picture usually shows a distended bladder with irregular wall outlines, sometimes diverticula and by reflux up one or both ureters, the upper tract may be delineated (fig. 3). Hydro-ureter and hydronephrosis are commonly found. Ureteral elongation results from urinary backpressure and is roentgenographically evident by kinking, angulation, torsion or sagging of the ureter. The vesical outlet merits special attention because with valve obstruction a funnel shaped shadow extending downward for a centimeter or more is frequently seen. This is due to dilatation of the bladder neck and posterior urethra (fig. 4).

With the cystographic data in hand, one proceeds to cystoscopy. Following dilation of the urethra by the passage of steel sounds, passage of the infant cysto-urethroscope is usually easy. On the other hand, instrument tips frequently catch in valve pockets and make instrumentation extremely difficult or impossible. If a diaphragm obstruction with only a small aperture is present, considerable precystoscopic instrumental dilation may be required.

After the cystoscope has been passed, the bladder picture is noted. In one of my cases, the instrument could be passed well into the ureters. Examination of the posterior urethra is usually easy because of obstructive dilatation. This permits an excellent view of the verumontanum and valves and, by manipulation of the irrigating current, most valves can be made to balloon out. Cystographic and cystoscopic observations render ureteral catheterization and divided renal function tests unnecessary.

DIFFERENTIAL DIAGNOSIS

Valvular obstructions can easily be differentiated from chronic interstitial nephritis and polycystic disease by urologic examination. Other conditions to be ruled out by cysto-urethroscopy are congenital submucous fibrosis of the vesical outlet (so-called contracture [8]), neuromuscular disease (cord bladder) or hypertrophy of the verumontanum unassociated with valve formation. While all of these lesions may symptomatically

8. Campbell, M. F.: Submucous Fibrosis of the Bladder Outlet in Infancy and Childhood, J. A. M. A. **94**: 1373-1378 (May 3) 1930.

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simulate valve obstruction, the identification of valve blockage is easy.

TREATMENT

Removal of the obstruction constitutes the treatment, but as previously indicated this should not be attempted until the condition of the patient warrants surgical attack. If the residuum is over 3 ounces, gradual decompression and continuous bladder drainage should be carried out until functional stability has been established. If the residuum is less than 3 ounces, preliminary drainage for a few days is excellent practice. With continuous drainage, the blood on chemical examination, the phenolsulphonphthalein output and the general physical condition of the patient will in the course of a few days or weeks attain a degree of improvement which further drainage does not augment. Operation may then be carried out. If the patient does not tolerate the indwelling urethral catheter, cystotomy decompression and continuous drainage must be resorted to. My experience with indwelling urethral catheter drainage in older boys has paralleled that in adults, but in very young boys maintenance of this form of drainage may be exceedingly difficult. During the preliminary drainage period, water in abundance and rest is the best treatment; urinary antiseptics are not needed.

Several methods of valve removal have been advocated. Perineal approach is unsatisfactory and unnecessary. If the urethra is impassable or cystotomy drainage has already been instituted, a suprapubic attack may be carried out. Young has satisfactorily removed valves with his miniature punch; others [9] have destroyed valves by fulguration and in some instances the valves have been ruptured by the passage of steel sounds. I have successfully used the electrotome cutting current with which, under visual guidance, one can excise the obstructing valve leaflets. At the same time the size of the verumontanum can be reduced if it is abnormally large. Reference to the accompanying tabulation of our cases indicates that this method gives thoroughly satisfactory results. There is a minimum of surgical shock; in young boys the procedure is carried out under gas anesthesia and, in our experience to date, postoperative bleeding or other undesirable sequelae have been negligible. On the other hand, we have been fortunate in getting our operative cases relatively early.

Fluid in abundance is the best medicine following operation. If the obstruction has been properly removed, urination will be free. The administration of urinary antiseptics at this time is unnecessary. Anemic children or those in whom the need of transfusion seems at all likely are best given the blood before operation.

PROGNOSIS

The prognosis is based on the degree and duration of the obstruction and is directly proportional to the renal function and damage. Fortunately, the low renal function of compression nephritis is not always as ominous as the initial observation might suggest for, with continuous preliminary drainage, renal function not infrequently returns to a satisfactory degree. Therefore a somewhat more accurate prognosis can be rendered after one has observed the quantitative improvement in renal function following continuous preoperative drainage.

9. Randall, Alexander: Congenital Valves of the Posterior Urethra, Ann. Surg. **73**: 477 (April) 1921. Hinman, Frank; and Kutzman, A. A.: Congenital Valvular Obstruction of the Posterior Urethra, J. Urol. **14**: 71-112 (Aug.) 1925.

SUMMARY

With more careful attention to urologic symptoms and with wider application of technical urologic diagnostic procedures in children, a far greater incidence of urethral valve obstructions (as well as numerous other forms of serious urinary tract disease) will be found. The valves are congenital; the embryonic mechanism of their formation is unknown. Symptoms are those of infravesical obstruction plus renal damage. The diagnosis is easy to make if one will employ cystography and cysto-urethroscopy. A careful preoperative treatment with gradual bladder decompression and continuous drainage when indicated together with a large fluid intake is imperative for successful surgical results. Removal of the obstructing valves by the cutting current is strongly advocated because (1) it may be carried out under vision, (2) there is a minimum of surgical shock or disturbance of the urinary tract after operation, and (3) thoroughly satisfactory results are obtainable.

33 East Sixty-Eighth Street.

SOLITARY SEROUS RENAL CYSTS

WITH A STUDY OF ROENTGEN OBSERVATIONS *

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Each year brings increasing numbers of case reports of solitary serous renal cysts. In 1920, Kretschmer [1] collected but forty-seven cases reported in the literature, adding one of his own. Only seven years later, Carson [2] gathered 142 plus 3 of his own, and in the few months that elapsed before his article was published, 6 new cases had cropped up. Today more than 160 cases have been reported, and whenever this condition is discussed, new cases, not reported in the literature, are mentioned by those present. Löffler,[3] in introducing four of his cases, writes: "Retention cysts of the kidney occur as solitary and multilocular cysts and are frequently found by the pathologist. The clinician observes them less frequently because, in themselves, they produce no pain." Branch,[4] in a recent article, states that pathologists see these cysts in from 3 to 15 per cent of routine autopsies; and he stresses the fact that he refers only to true solitary serous cysts at least 4 or more centimeters in diameter, and not to small retention cysts. It is likely that with the numerous cases being reported, diagnostic acumen may increase so that, as in the case of congenital bilateral polycystic kidneys, which a decade ago were still uncommon enough to warrant reporting, or as in the case of diverticulum of the bladder, when in the year 1906 only five cases had been reported in the United States, in the near future more cases will be seen and discussed; and the much flaunted idea of rarity will not deter one from venturing a preoperative diagnosis of solitary renal cyst. Though the condition is certainly uncommon clinically, it is not as rare as originally believed, even though nearly every article on the subject begins by stressing its rarity.

* Read before the Section on Urology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 27, 1930.

1. Kretschmer, H. L.: J. Urol. **4**: 567 (Dec.) 1920.
2. Carson, W. J.: Ann. Surg. **87**: 250 (Feb.) 1928.
3. Löffler, L.: Zschr. f. urol. Chir. **20**: 407, 1926.
4. Branch, C. F.: J. Urol. **21**: 451 (April) 1929.

Some confusion still exists as to the roentgenographic and urographic observations in this condition. George Gilbert Smith,[5] in 1924, said, "There is relatively little known as to the pyelographic study of these kidneys." Clute,[6] in the same year, said, "The appearance of a round swelling arising from one pole of the kidney, separated from or overlying a normal pelvis is the typical pyelogram." Eisendrath[7] writes, "If the cyst does not displace the renal pelvis, and this is true of most of the cases, the pyelogram will not reveal any changes from the normal." Young[8] states that no solitary cyst has been seen at the Brady Institute and that pyelography should be done, "though we are unable to give any statistics as to its diagnostic value." More recently, however, Colston[9] described a case of solitary cyst and papillary cystadenoma seen at the Brady Institute.

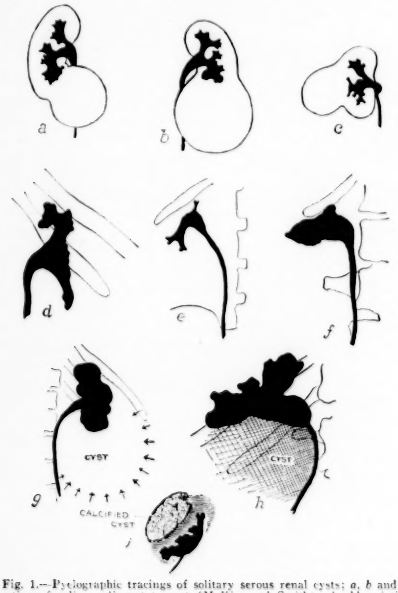

Fig. 1.—Pyelographic tracings of solitary serous renal cysts; *a*, *b* and *c*, blunting of calices adjacent to cyst (McKim and Smith); *d*, abbreviation of middle calix (Braasch); *e*, absence of middle calix; upper only partially filled (Louis Smith); *f*, cylindric pelvis; only an upper abbreviated calix remains (Braasch); *g*, hydronephrosis and displaced ureter (Clute); *h*, pelvic axis displaced horizontally and pushed upward (Braasch); *i*, calcified cyst; pelvic dilatation; flattened calices (Kirwin).

Recently we had a case in which the pyelogram was so unlike any we had ever seen that we examined the literature in an effort to draw some simple, definite conclusions as to the status of roentgenography and urography in this condition. As early as 1911, Braasch suggested pyelography in the diagnosis of solitary cyst, and his first book on urography shows several pyelograms. Schulman,[10] in 1916, reported a case in which pyelography was done and a diagnosis of hypernephroma was made. He did not show or describe his roentgen observations. Kretschmer's pyelogram, in 1920, was still one of the few on record and showed a hydronephrosis. Since that time pyelography with other refinements of urologic diagnosis has been more extensively utilized. A simple explanation will clear the needless confusion that exists regarding pyelographic changes. Solitary cysts, regardless of the disputed theories of origin, involve the cortex. Pyelographic observations will depend on the relationship of the cyst wall to the pelvis or its calices, to any changes produced in the course or lumen of the ureter by virtue of pressure from a large cyst, and to any change in the position of the kidney from pressure or increased weight. Naturally, those cysts arising in the upper pole or middle of the kidney will be more apt to produce pelvic pressure changes than those arising in the lower pole and growing downward away from the kidney pelvis. The last group is most common and more likely to produce pressure changes on the ureter with resulting pyelectasis.

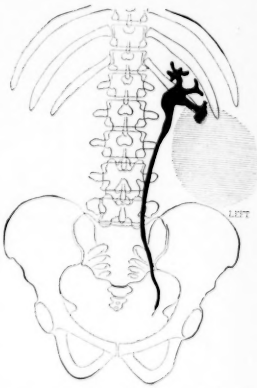

Fig. 2 (case 1).—Lower pole cyst: only slight blunting of inferior calix.

From those reported we have summarized the more common characteristics of roentgen observations and have had tracings made of pyelograms illustrating the representative groups. These are six in number: (1) normal, (2) hydronephrosis, (3) compression of the calix or the true pelvis, (4) change in position and axis of the kidney, (5) the outline of the shadow of the cyst, and (6) calcification of the cyst wall.

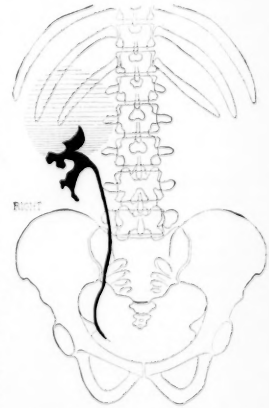

Fig. 3 (case 2).—Upper pole cyst: definite blunting of superior calix.

1. The pyelogram may be normal. If the cyst does not impinge on the pelvis, there will naturally be no compression of the pyelogram. This, of course, is true in the great majority of small cysts. We do not believe

5. Smith, G. G.: Boston M. & S. J. **190:** 691 (April) 1924.
6. Clute: S. Clin. North America **14:** 1453, 1924.
7. Eisendrath, D. N., and Rolnick, H. C.: Textbook of Urology for Students and Practitioners, Philadelphia, J. B. Lippincott Company, 1928.
8. Young, H. H., and Davis, D. M.: Young's Practice of Urology, Philadelphia, W. B. Saunders Company, 1926.
9. Colston, J. A.: J. Urol. **19:** 285 (March) 1928.
10. Schulman, M.: New York M. J. **104:** 218 (July 29) 1916.

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it common in those large enough to cause clinical symptoms, for pain is almost invariably due to pressure changes, and the average diameter of such cysts, according to McKim and Smith,[11] is 15 cm. Conversely, the fact that a cyst is small does not necessarily mean that the pyelogram will always be normal. Several of the most marked defects have been produced by small cysts growing near and pressing early on the pelvis. Dr. Louis Smith[12] describes a case showing absence of the middle calix and an upper calix only partially filled caused by a cyst 1 by 1.5 by 3 cm. in the upper pole (fig. 1 *e*).

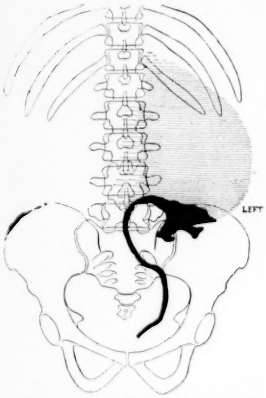

Fig. 4 (case 3).—Upper pole cyst: change in position and axis of kidney and pressure on superior pelvic outline; ureter displaced.

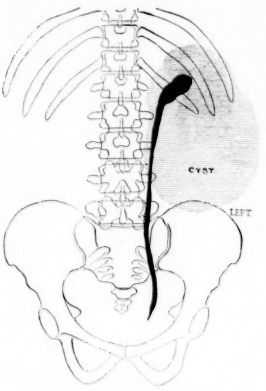

Fig. 5 (case 4).—Cyst involving entire anterior wall of kidney from pole to pole; oval pelvis with all calices obliterated.

2. Hydronephrosis is the most common deformity due to the frequency of the lower pole cysts (fig. 1 *g*). This is unfortunate in that it undoubtedly obscures early and slight flattening of the renal pelvis so valuable in diagnosing this condition. It is this fact that has undoubtedly given rise to the erroneous idea that the pyelogram is usually normal. A secondary hydronephrosis is usually caused by tumors which displace or obstruct the ureter, interfering with drainage; such cysts are usually large enough to give other diagnostic clues. Even in this type of deformity, we feel that there should often be some direct pressure change on the pelvis or calices, which, even though slight, should be sought and considered in evaluating the various points of information. It would be unfair for us to say that some of the pyelograms shown in the literature as normal or with simple hydronephrosis did show localized pressure changes, as it is impossible to judge these reproduced pyelograms; and for this reason we have had the artist make skeletal tracings of our pyelograms to show changes that would be lost in the reproduction on lantern slides or on the printed page.

3. Compression of the pelvis nearest the cyst is a most suggestive feature in some pyelograms. There may be slight flattening or blunting of the adjacent calix or calices (fig. 1 *a*, *b*, *c*). Abbreviation may be more marked and frequently one or more calices are completely obliterated (fig. 1 *d*, *e*, *f*). One of our cases was unusual in that all calices were absent (fig. 5). In association with or independent of flattening of the calices there may be similar infringement on some other portion of the renal pelvis. Occasionally this gives rise to a cylindric pelvis. Blunting of calices was seen in all three cases of McKim and Smith and is probably one of the earliest recognizable pyelographic changes. With more pressure, retraction of calices is seen and is one of the most common observations. Flattening of the pelvis without changes in the calices may occur if the cyst arises on the mesial kidney border.

4. A change in the position and axis of the kidney as a result of increased weight on one pole is given by Braasch[13] as one of the three pyelographic deformities produced (fig. 1 *h*). In his book he stresses (*a*) abbreviation of adjacent calices, (*b*) compression and flattening of the adjacent portion of the renal pelvis and (*c*) a change in the position and axis of the kidney.

5. The outline of the shadow of the cyst itself is the roentgenographic observation of greatest importance from the frequency of its occurrence and from its diagnostic value. This has often been discerned distinctly in close relationship to the kidney and frequently displaced ureter.

The relative difference in density of the typically large, rounded shadow to adjacent solid organs suggests its cystic nature and is clearly brought out in cases in which the tumor overlies the kidney, allowing the latter to show through quite clearly. We cannot give statistics as to its frequency as the literature

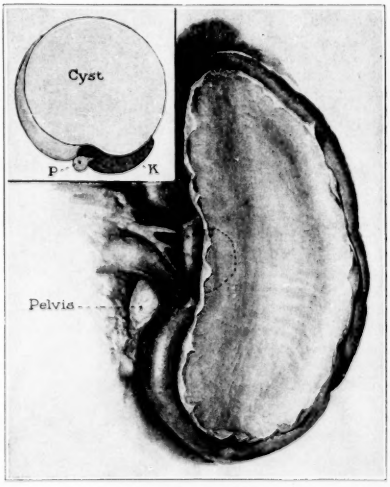

Fig. 6 (case 4).—Relation of cyst to anterior renal wall and bed remaining after partial resection of cyst; kidney was not removed at operation.

11. McKim, G. F., and Smith, P. G.: J. Urol. **12**: 635 (Dec.) 1924.
12. Smith, L. D.: Illinois M. J. **52**: 291-295 (Oct.) 1927.
13. Braasch, W. F., and Hager, B. H.: Urography, Philadelphia, W. B. Saunders Company, 1927.

is vague on roentgenographic details, but we believe that a careful search will show the larger cysts in most cases. They were seen clearly in all ours and in many cases reported in recent literature. The increasing frequency of this finding in more recent years is probably due to improvements in modern roentgenographic technic.

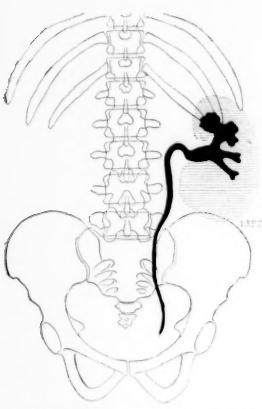

Fig. 7 (case 4).—Five weeks after partial resection of cyst: note renal ptosis and dilatation of superior calix; compare with figure 5 before operation.

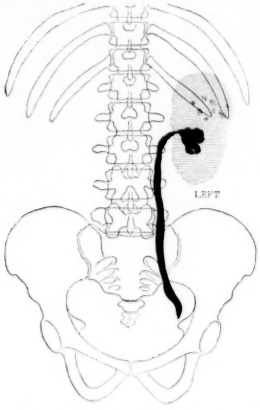

Fig. 8 (case 5).—Upper pole cyst filled with blood; patches of calcification in wall; upper calix absent.

6. The shadow produced by calcification of the cyst is an interesting but less common finding. It was seen to best advantage in a case described by Kirwin[14] (fig. 1 *i*).

Another diagnostic feature was utilized by Ormond[15] in diagnosing a solitary serous cyst. He was able to show that the slightly dilated renal pelvis moved downward with the palpable abdominal mass, pyelograms being taken before and after applying downward pressure on the tumor with the hand. This fact associated the mass of lesser density with the kidney proper and enabled him to make a correct preoperative diagnosis.

These six features characterize roentgen observations in cases found at operation to be solitary serous renal cysts. Prior to 1923 only seven correct preoperative diagnoses had been made out of ninety-four cases collected by Harpster.[16] Of the seven, three were made from plain roentgenograms. Since that time quite a number have been correctly diagnosed, but unfortunately exact figures cannot be given because most reports fail to state whether a preoperative diagnosis had been ventured. However, the diagnosis is even today only too often made at operation. It is to be hoped that, with knowledge gleaned from a discussion of roentgenographic observations, diagnostic skill will increase.

Cases with obliteration or marked retraction of the calices are usually diagnosed, and quite naturally, as neoplasms. This is especially true with small cysts. Solitary cysts are, and present the pyelograms of, kidney tumors. Of importance in ruling out neoplastic growths is the absence of bleeding. Hematuria has occurred in these cases but usually because of some associated pathologic condition as stone or chronic nephritis. Function is usually normal or only slightly reduced with solitary cyst. On palpation of large cysts, a sense of elasticity may be determined. Neoplastic changes frequently cause as the earliest deformity elongation, rather than abbreviation, of the calices. As a neoplasm enlarges toward the periphery it stretches the calix with it, so that elongation is accompanied by narrowing. Bizarre distortion may occur as a result. A neoplasm as large as the usual cyst observed clinically is likely to cause extensive pelvic deformity.

Pyelography can never replace a careful history, physical observations, and other urologic data in the diagnosis of cyst. Nor should it be used except as an adjunct to other observations in the diagnosis of any other renal condition. However, with compression seen in the pyelogram, kidney involvement should be suspected though it may not be interpreted correctly, and exploration should be considered. If the outline of the cyst is seen near or overlying the kidney a preoperative diagnosis can often be made, especially if there are pyelographic pressure changes.

At operation, resection of a wedge-shaped portion of renal tissue with the cyst is the ideal treatment. The cyst is characteristically attached firmly to the adjoining parenchyma and can seldom be shelled from its bed. Tearing dissection is crude at best and more likely to be followed by secondary hemorrhage than the removal of a portion of the kidney with the cyst wall and the bringing together of the resulting V-shaped defect by approximation sutures.

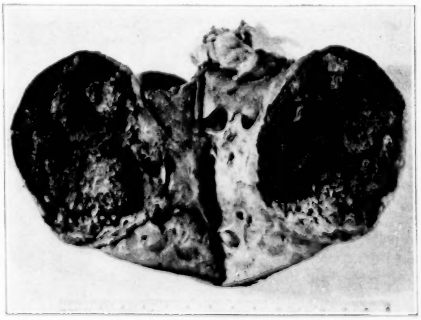

Fig. 9 (case 5).—Blood-filled solitary cyst removed at operation: kidney and cyst have been laid open by longitudinal incision.

If the growth is large or multiple, and if resection should necessitate too great a loss of renal tissue, the cyst may be cut off flush with the renal border and its base cauterized. Following either of these procedures, the kidney should be sutured in normal position to prevent displacement in the resulting cavity left by the removal of a large cyst. Nephrectomy has been fre-

14. Kirwin, T. J.: J. Urol. **15**: 273 (March) 1926.
15. Ormond, J. K.: Am. J. Surg. **6**: 241 (Feb.) 1929.
16. Harpster, C. M.; Brown, T. H., and Velcher, A.: J. Urol. **11**: 157 (Feb.) 1924.

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Carl A. Lucintanca M. D.

quently utilized in the past but unless an associated malignant condition is suspected or parenchymatous damage is too great, more conservative surgery is indicated.

We are presenting brief histories of six cases, in five of which a tentative diagnosis of solitary renal cyst was made before operation as a result of roentgenographic data. In one case a diagnosis of renal tumor was made before and at operation, but pathologic study revealed a blood-filled cyst.

REPORT OF CASES

CASE 1.—S. C., a man, aged 70, was admitted to the Presbyterian Hospital in the service of Dr. Oberhelman, complaining of attacks of pain in the left loin radiating anteriorly to the groin. Symptoms were of only a few days' duration, though a year before he had suffered painful attacks on the right side which were described as heavy, pulling sensations. No hematuria was present.

Examination was essentially negative. At cystoscopy, we discovered a stone in the left intramural ureter, but when roentgenograms were made (fig. 2), in addition to this calculus was seen the shadow of a cyst the size of an orange, overlying the lower pole of the left kidney. The pyelogram itself was practically normal though there was a slight blunting of the inferior calix and some flattening of the inferior pelvic border. The stone passed spontaneously and the cyst was resected at operation.

In this case the pyelogram showed but little abnormality because the cyst was small, did not encroach on the pelvis to any extent, and occupied the lower pole; but the presence of the cyst was clearly seen and permitted of a preoperative diagnosis.

CASE 2.—N. R., a man, aged 58, was admitted to the Presbyterian Hospital complaining of pain in the back over the right kidney for two weeks. Epigastric fulness had been noted for many years. The dull backache was aggravated by sharp exacerbations with radiation of the pain anteriorly. No hematuria had been observed.

Repeated plain roentgenograms with catheters in situ suggested a calculus in the right ureter, but it was not until pyelography was utilized that the true pathologic condition was discovered. The roentgenogram (fig. 3) showed a distinct deformity of the right superior calix, which was somewhat enlarged and curved on its upper part as if by pressure from above. A second film repeated this deformity and showed retention of almost all the solution in the kidney, which was pushed down to the third and fourth lumbar spines. A globular shadow the size of an orange lay over the upper pole of the kidney and was apparently causing the pyelographic defect. This shadow was not heeded until the pyelogram was made. Function tests and urinalysis were normal.

A diagnosis of serous renal cyst was confirmed by operation. The pyelographic change was one of blunting of a calix, and it is interesting to compare this pyelogram with that of case 1, in which a cyst of the same size situated at the lower pole caused practically no deformity.

CASE 3.—Mrs. R. B., Negro, aged 36, was admitted to the Presbyterian Hospital, in the service of Dr. Bevan, complaining of an abdominal swelling, dull backache and bearing-down sensations. The symptoms followed the birth of a child, four years before. No hematuria had ever been present. Elsewhere a diagnosis of ovarian cyst had been made two years before.

Examination revealed a cystic mass occupying the entire left half of the abdomen. It moved with respirations and the kidney could not be palpated. Air inflation of the colon indicated a retroperitoneal position of the mass. Pyelography (fig. 4) revealed a distorted kidney pelvis at the level of the fifth lumbar spine, overlying the iliac crest. It was elongated, as if by compression from above by the large shadow of the cyst, which was clearly seen. Urinalysis and function tests were normal.

At operation, the large solitary serous cyst was resected from the upper pole and the prolapsed kidney was secured in good position by sutures. The pyelogram falls into the group of "change in position as a result of pressure and weight" and also shows direct pressure on the superior pelvic outline.

CASE 4.—Mrs. A. K., aged 53, entered the Berwyn Hospital, complaining of pain in the left side of the abdomen for six years. At times, especially after meals, suffering was intense. It was a sense of heaviness and there were no urinary symptoms whatever.

The essential finding on examination was a large, rounded, firm mass filling the entire left side of the abdomen. It was not tender, and a sense of elasticity was noted. There seemed to be no direct connection with the pelvic organs. Blood and urine were normal.

Plain roentgenograms revealed the large, rounded mass of a tumor, superimposed on which the kidney shadow of normal outline could also be seen quite distinctly in spite of the patient's obesity.

Cystoscopy showed no drainage in forty-five minutes from the left kidney, but perfect function on the right. A left pyelogram (fig. 5) revealed a normal sized, oval pelvis with all calices completely obliterated. The kidney lay in about the center of the larger, rounded, less dense shadow of the cyst, which filled the entire left side of the abdomen. Injection of air showed that the bowel lay anterior to the mass. A tentative diagnosis of renal cyst was made, though the anuria on that side was puzzling. Operation revealed a large solitary serous cyst of the anterior surface of the kidney extending from the superior to the inferior pole, practically bisecting the anterior half of the kidney (fig. 6). It measured about 18 cm. in diameter and had burrowed down to the pelvis but was not connected with it. It had dissected its way between the posterior peritoneal wall and the ureter so that the latter was not displaced laterally. It contained clear, watery fluid. We resected the cyst flush with the kidney surface, cauterized its renal base with phenol and packed this bed. The kidney appeared normal in all other respects, and we were reluctant to resect the cyst completely, because it meant injuring the large vessels on the anterior renal pelvic wall and opening the pelvis proper, as the cyst wall could not be shelled away. Such a formidable procedure might have necessitated a nephrectomy and we wished to observe the recuperative powers of that kidney.

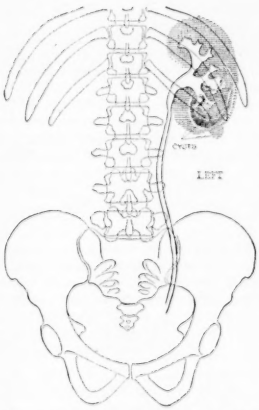

Fig. 10.—Multiple small cysts of lower pole: overlying margins gave an erroneous impression of calcification; thinning out of iodide in middle and lower calices (opaque medium here shown in white in contrast to black on other figures.)

Convalescence was uneventful, the patient leaving the hospital on the thirteenth day after operation. Cystoscopy three weeks later revealed perfect function in both kidneys. A pyelogram at this time (fig. 7) revealed some dilatation of the superior calix with normal middle and lower calices. In spite of extensive packing about the kidney, postoperative ptosis occurred, the pelvis being found opposite the third lumbar spine instead of the first as in the preoperative pictures. The cavity left following removal of the cyst was so large that suture fastening of the kidney in a more ideal anatomic position would have been preferable.

This cyst had obliterated all calices in the pyelogram and was unusual in the location and extent of involvement of the anterior renal surface.

CASE 5.—Mrs. R. M., aged 61, was admitted to the Presbyterian Hospital in the service of Dr. Abbott, complaining of

pain in the left flank, of twelve weeks' duration, associated with vomiting and fever. The onset had been sudden, following an automobile trip. She had no other symptoms and no hematuria. Physical examination was negative except that the left kidney was more easily palpable than the right. A plain roentgenogram showed enlargement of the upper pole of the right kidney with a suggestion of calcification in this area. The pyelogram showed an absence of the upper calix (fig. 8). A preoperative diagnosis of kidney tumor was made.

At operation we felt we were dealing with a tumor and removed the kidney. When it was opened, a cyst was found containing free blood and material resembling organized clots (fig. 9). Sections revealed this material to consist of necrotic debris, lymphocytes and some fibroblasts. There was no evidence of neoplastic tissue. The wall was hard and leathery.

There is some question as to whether this might not be more appropriately classified with true solitary hemorrhagic cysts, which Begg [17] of New Zealand states are in a different category from solitary serous renal cysts. Hemorrhagic cysts usually show pyelographic changes, because some portion of the renal pelvis is almost certainly involved. In our case we feel that hemorrhage had taken place into a serous cyst.

The roentgenogram did reveal the tumor, but, because of its contents, its cystic nature was not suspected. The pyelogram falls into the group of obliterated calices. Early calcification of the cyst wall recalls Kirwin's case.

CASE 6.—C. F., a man, aged 60, was admitted to the Presbyterian Hospital complaining of pain in the back, of one week's duration. There had also been some difficulty in starting the urinary stream, and hematuria had been noticed shortly before admission. There was moderate enlargement of the prostate, which was confirmed at cystoscopy and was probably the cause of hematuria and difficulty in urination.

Roentgenograms revealed a circumscribed area of increased density about 7 cm. in diameter, over the lower pole of the left kidney. The lower margin was so distinct as to suggest calcification. A pyelogram (fig. 10) revealed a partial filling—a thinning out of the iodide—of the middle and lower calices as if by extrinsic pressure. The upper ureter was displaced mesially. A diagnosis of cyst of the kidney was made with probable calcification of the wall. The sudden onset of pain suggested the possibility of recent hemorrhage, as in the previous case.

At operation four cysts were seen springing from the renal surface. One was attached to the lower pole, two to the posterior surface of the kidney, at its middle, and one to the convex border. Three of these cysts were as large as a small orange, and one was the size of a crabapple. The walls were thin and there was no calcification. They contained a yellowish clear serous fluid. None of them communicated with the pelvis of the kidney. The cysts were cut off flush with the renal surface, and their bases were cauterized with full strength phenol. They were not resected, because the kidney parenchyma looked normal and resection of four cysts would have been too destructive.

The pyelogram shows compression, but, unlike the blunting in other cases, the picture was one of thinning out or fragmentation. The outline of the cyst showed clearly and the margin suggesting calcification was apparently produced by overlapping of two cysts. The multiplicity of cysts does not alter the diagnosis of solitary serous renal cyst, as the literature seems to include this type in the terminology designated.

SUMMARY

1. Solitary serous renal cysts, though uncommon clinically, are not so rare but that they warrant consideration and elimination in all tumor masses of the abdomen. With increasing data available from the numerous cases being reported, it is probable that a preoperative diagnosis will be made more frequently.

2. The roentgenogram may show: (*a*) a normal pyelogram; (*b*) pyelectasis; (*c*) compression of the calices or the true pelvis; (*d*) change in position and axis of the kidney; (*e*) the outline of the shadow of the cyst itself, or (*f*) calcification of the cyst wall.

3. A most important and frequent roentgenographic finding is the outline of the shadow of the cyst itself, in close approximation to the solid renal shadow and with density in marked contrast to that organ. A careful search should always be made for this shadow. It is more likely to be overlooked on a plain film than with the pyelogram.

4. A cyst large enough to cause clinical symptoms is often associated with an abnormal pyelogram, which, though seldom absolutely typical of the cyst, nevertheless calls attention to pathologic changes in the kidneys.

5. Resection of a wedge-shaped portion of renal tissue with the cyst is the treatment of choice. This method is less likely to be followed by secondary hemorrhage than the attempt at mere resection of the cyst wall. Rarely can the latter be shelled from its renal bed. The kidney should be fixed in place by sutures to prevent postoperative ptosis in the resulting cavity. Nephrectomy should be carried out only in cases of extreme renal damage or suspected associated cancer.

6. Six cases are reported, five of which were diagnosed correctly, before operation, the sixth a hemorrhagic cyst, as a renal tumor, all by virtue of roentgen observations.

104 South Michigan Avenue—3245 Oak Park Avenue.

17. Begg, R. C.: Brit. J. Surg. **13**: 649 (April) 1926.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. LAU AND HENLINE, CAMPBELL, AND HERBST AND VYNALEK

DR. ROBERT E. CUMMING, Detroit: My own notion regarding the etiology of solitary serous renal cysts is that such cysts are perhaps acquired disease, not congenital. There is, however, probably an element akin to such congenital deformations as polycystic kidney disease in that there may be a group of cells located in that portion of the kidney in which such cysts develop (having been actuated by infection, trauma or other unknown agents), that have the faculty of developing into these solitary cysts. The results of microscopic examination are indeterminate, the lining membrane usually being so much on stretch as to preclude certain knowledge as to whether this lining is of endothelial or epithelial origin. Our conception relative to polycystic disease being always bilateral has been borne out in a number of instances in which one kidney presented grossly only a single or possibly two large cysts. Microscopic examination of the kidney, however, revealed early degenerative changes typical of polycystic disease. I am in accord with the idea expressed recently by Braasch that the so-called hemorrhagic cysts are the same type as described by Drs. Herbst and Vynalek, the bleeding being a secondary factor. The authors' data relative to diagnosis and treatment are most valuable and are worth using in individual work. Concerning the interesting anomaly reported by Drs. Lau and Henline, the condition is well developed embryologically and we are once more cautioned to be on the lookout for such involved conditions, which may account for many difficulties in handling obscure urologic lesions. Drs. Lau and Henline adopted the obviously correct method of treatment in the case reported and were fortunate in having intravenous urography at their disposal as an aid to diagnosis. Relative to Dr. Campbell's method of preliminary conservative treatment and diagnosis, I feel that chromocystoscopy by means of indigo carmine is of definite value at the time of cystoscopy, serving to give data on differential function, which adds to the accuracy of later therapeutic procedures. I approve heartily of his method of actual treatment of the obstruction and I am sure that no one is better qualified as an authority than Dr. Campbell. I am sure, also, that many of these cases are never discovered and that there are many more which have been discovered and some of them successfully treated, which have not as yet been reported. I myself have seen fourteen cases with obstruction of this nature during the last ten years.

DR. HERBERT T. HAYES, Houston, Texas: I was especially interested in the paper of Drs. Lau and Henline in their report

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of three ureters on the right side. I think they should be complimented on the way they have worked up this case. In a case that came to my attention, there were three ureters on the left side. Two were complete and the third was about 1½ inches long. A pyelogram revealed that the large pelvis was the lowest in the kidney but that the ureteral orifice was the highest on the left ureteral ridge. The second ureteral orifice was slitlike and below the first. The second ureter had a small pelvis in the kidney that was above the larger and more normal pelvis. The third ureteral orifice was slitlike and below the second and closest to the vesicle orifice. This ureter was only about 1½ inches long and ended blindly. When the sodium iodide was injected into it there was considerable pain. This man had infection of only one ureter. The urine from the highest ureter was of amber color, was of high specific gravity, and was not infected. Urine from the second ureter was of low specific gravity, was infected, and there was a slight stricture of this ureter. This was dilated and the kidney pelvis lavaged several times.

DR. CHARLES C. HIGGINS, Cleveland: Literature has led to the inference that solitary cysts of the kidney are of rare occurrence. Of 154 cases reported recently, at least, two thirds have been collected during the last five years, indicating that since the urologist has become acquainted with this type of pathologic kidney it is now being recognized more frequently. As a general rule, solitary cysts of the kidney do not produce symptoms unless they attain a size sufficient to exert pressure on the adjacent structures. Individuals may have a cyst of the kidney the size of a lemon and not be aware of its presence. At the Cleveland Clinic we have had nine cases of solitary cysts of the kidneys. Of the nine cases, seven have required surgical intervention. It is interesting that in only two cases were the cysts of such a size that pressure phenomena were notable. A roentgenogram may be normal even with a cyst of moderate size. In two cases of our series the plain roentgenogram showed a large cyst attached to the lower pole of the kidney, and a diagnosis of solitary cyst was made from roentgenologic study. Heminephrectomy is the treatment of choice for this condition and was performed in five of these patients. In two of them there was an associated colon pyonephrosis, and a nephrectomy was indicated. If the patient's condition does not warrant a heminephrectomy, a more conservative treatment can be instituted; namely, marsupializing the cyst wall to the incision, similar to the treatment employed in caring for a pancreatic cyst. After the patient's condition is satisfactory, the cyst may be removed by performing a heminephrectomy; however, there is no doubt, as Drs. Herbst and Vynalek have emphasized, that heminephrectomy, if possible, is the treatment of choice for this condition.

PROF. EDMOND PAPIN, Paris: The paper of Drs. Lau and Henline is extremely interesting and important. One must consider it as the first case of triple ureter observed in the living patient. I have made many studies of anomalies of the kidneys and ureters and after having thoroughly reviewed the literature I have concluded that up to the present time there has been no authentic case of triple ureter. The old cases are all poorly described; the majority are only trifurcations. Gould's case is false. It is interesting to have a well studied case of true triple ureter and gives rise to the question of the theoretical origin of anomalies. It is easy to understand why this malformation is exceedingly rare: double ureter is due to premature bifurcation of the ureter into the two major calices: triple ureter results from early defurcation of one of these ureters: it is therefore an anomaly of an anomaly, or, if you so wish, an anomaly of second degree. All cases should be studied with great care and Drs. Lau and Henline must be thanked for their interesting and complete observations.

DR. FREDERICK T. LAU, New York: I believe from the study of our case that it can be explained embryologically according to the splitting of the ureteral body. I think that the case seen by Dr. Hayes is exactly like ours but that the opaque mediums did not go up so far. A pathologic point to which Eisendrath called attention some years ago is interesting; that is, when one encounters a double ureter, the ureter draining the upper portion of the kidneys always empties into the bladder at a point below the entrance into the bladder of the ureter that drains the lower portion of the double kidney.

PHYSIOLOGIC MEANING OF COMMON CLINICAL SIGNS AND SYMPTOMS IN CARDIOVASCULAR DISEASE*

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Medical diagnosis is a science that involves more than the ability to recognize signs and symptoms and subsequently to group them into complexes or syndromes which in the light of past experience makes it possible to call a disease by name. Even a modest claim to proficiency requires a knowledge of the pathologic anatomy involved. But real genius in diagnosis is not achieved without the mental ability to portray also the functional disturbances concerned.

But all progress in eliciting obscure signs and new evidences of diseases and all discoveries in diversified fields of physiology have operated rather slowly in placing diagnosis on a physiologic basis. There are obvious reasons why the morphologic basis of disease antedated the functional conception. Morphologic pictures are concrete; they make a direct appeal to the senses. Physiologic processes are generally abstract; the mind can group them only through the employment of physical and chemical aids that transform physiologic forms of energy into types that can be interpreted by the senses. Many physiologic properties of living tissue —conduction or metabolism may be taken as examples— are as insusceptible of recognition by human sense organs as are radio, ultraviolet or x-ray vibrations. Nevertheless, by employment of the string galvanometer and cathode ray oscillograph, the mysteries of the conduction process have become comprehensible, and now it is virtually possible to see the excitation process spread over a heart or a nerve; to know where it begins and where it halts; how often and how fast it travels. The methods of direct and indirect calorimetry practically enable the physiologist to watch the vital fire of life burning within the cells; he can fathom the quantity and character of the substances burned as well as the rate of combustion under different circumstances. These instances suffice to recall that the unraveling of nature's intangible mysteries called functions usually requires the employment of complex physical apparatus or involved chemical procedures. To facilitate expression and intercommunication of facts discovered by such methods, new words, terms and phrases are necessarily introduced. Hence, it frequently follows that the mechanism and meaning of functional processes must at first be couched in language that is not universally understood. So it comes about that many a field of interesting scientific discovery remains in the cocoon stage because the abstract ideas involved cannot easily be translated into concepts that the mind easily grasps.

This extremely slow hatching process involved in the birth of new physiologic facts and the equally slow metamorphosis that their modes of expression must undergo are not the only factors that have retarded the functional interpretation of disease. Perhaps equally significant, though more easily remedied, is the faulty impression that the functional reactions of disease differ intrinsically from those in health; whereas in reality they differ only in degree. A great variety of physiologic processes are continually recurring in the

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body as a result of chemical and nervous stimuli; but since the reactions are normally balanced, function continues on an even keel, and the mind remains unaware of them.

Physiologists frequently carry out laboratory experiments in which a single reaction or a group of reactions is intensified, depressed or inhibited through the employment of artificial chemical or nerve stimuli. Thus, on an anesthetized animal, one may stimulate an afferent nerve with an electric current and produce a reflex fall of blood pressure. A shop worker who accidentally crushes a finger duplicates the same experiment with the difference that, being conscious at the start, he faints.

Again, the student may perform a respiration experiment by partially occluding the trachea of an anesthetized animal in which case anoxemia and hypercapnia of the blood occur and stimulation of the respiratory center causes deep and rapid breathing. He may himself carry on a similar experiment by taking vigorous exercise. The respiratory reactions are identical with those of the laboratory animal; only the human mind becomes conscious of the dyspneic breathing. By filling the alveolar spaces with liquid and fibrin so that a rapid interchange of oxygen and carbon dioxide is prevented, nature produces the same respiration experiment, and the disease is called pneumonia.

In short, every form of disease may be looked on as an experiment that nature performs on animals or man. The so-called symptoms of disease are nothing more than intensified or depressed reactions which, if not actually in operation, are at least potentially available in the normal organism. No pathologic process in disease is capable of evolving new types of functional reactions. Neither is it capable of exciting or depressing functions that cannot be similarly affected by artificial or natural means in normal organisms. The methods employed by nature in experiments are often cleverly concealed and hence not always fully understood. It is the task of experimental physiology and of experimental medicine to discover the methods chosen by nature and to duplicate the physiologic reactions in experimental animals, where they can be more thoroughly investigated.

With such thoughts in mind, I propose to analyze a few common signs and symptoms of cardiovascular disease in the light of experimental studies, with a view of giving them a clearer meaning or an added significance.

TACHYCARDIA

An excessively rapid heart rate is a presenting symptom in such diversified conditions that it is important to determine at once whether a simple sinus tachycardia in which the origin and spread of impulses are normal is being dealt with or a form in which abnormal circuits or foci radiate impulses, as in auricular and ventricular paroxysmal tachycardias and in auricular flutter. Interesting differences occur also in the cardiodynamic mechanism, for while circulatory embarrassment rarely supervenes at heart rates of 250 per minute or over in sinus tachycardias, circulatory deficiency easily occurs at heart rates of 180 per minute or less in ventricular types of tachycardia.

Dynamic studies have shown that the faster the heart beats the more the period of diastolic filling is cut short and the more the systolic discharge is decreased. However, calculations show that this decrease is more than compensated by the cardiac rate, up to 200 per minute, so that the minute output becomes steadily greater. Only beyond this critical rate is the minute output reduced. The reason that the ventricles can fill at all at heart rates above 200 is that the heart muscle makes a remarkable adjustment. Calculations show that at a heart rate of 200 per minute the cycle length is only 0.3 second, or slightly more than the period of ejection at normal rates. Were it not for the fact that systole shortens progressively with increased rates, no interval for diastolic ventricular filling could exist.

Ventricular rates of 200 or less cannot maintain even a normal minute volume and result in circulatory embarrassment when an idioventricular rhythm is responsible for the tachycardia because of two factors. First, but less important, is the fact that ventricular filling is not aided by preceding synergic auricular contractions. Second, the abnormal spread of impulses over the ventricles produces a less efficient summation of fractionate contractions and consequently each systole develops less expulsive force.

Two dynamically different types of sinus tachycardia exist: (1) a form due to primary inhibition of the vagus or to stimulation of the accelerator nervous mechanism, e. g., that due to fear, to unstable conditions of the nervous system, to disorders of glands of internal secretion, to accelerated metabolism, to fever or to drugs; and (2) a compensatory form following a primary drop in blood pressure due to vasodilatation or reduced cardiac output. A clinical differentiation between these two physiologic types must be made by consideration of the entire clinical picture; it cannot be made from the degree of acceleration or from measurements of blood pressure alone.

Elementary dynamic considerations suggest that any increase in heart rate should theoretically produce an elevation of pressure. A significant rise of pressure is rarely found in human subjects, however; on the contrary, the blood pressure in the second type is often somewhat decreased.

This is due to the fact that the heart and peripheral vessels are reciprocally adapted to prevent more than moderate deviations from normal blood pressure levels. Whenever the heart rate increases and the blood pressure tends to rise, reflexes are promptly set up from the larger arteries which invoke a vasodilatation. Conversely, when arterial pressures fall, due to primary vasodilatation or to diminished cardiac output, the heart accelerates and strives to restore arterial pressures to normal. Marey, who first noted this inverse relationship between heart rate and blood pressure, believed that it was due to a direct effect of the altered blood flow through the medulla. More recent work, however, has shown that nervous reflexes from the large vessels are chiefly concerned in producing such moderating effects on blood pressure. Two definite pathways are recognized, one over those afferent branches of the vagus which are distributed to the root of the aorta, the other over the so-called sinus nerve, a branch of the glossopharyngeal which is distributed solely to the enlargement of the common carotid artery as it divides into internal and external carotid branches. The second or compensatory type of cardiac acceleration is produced through these reflex mechanisms not only when peripheral vasodilatation exists but also when the systolic discharge of the heart is reduced. Shock and hemorrhage are two clinical conditions in which such a reduced output and compensatory acceleration obtain. But it is not so generally appreciated that the same reflex mechanisms operate when ventricular discharge

is reduced as a result of myocardial failure and that the tachycardia which is so characteristically present is nature's only method of maintaining an effective circulation. Aortic insufficiency presents another condition in which this compensatory type of acceleration obtains. Studies in my laboratory have shown that in this lesion it is doubly favorable; it not only augments the minute volume as in normal hearts but, by reducing the interval of diastole, decreases the reflux of blood into the ventricle.

A full appreciation of the physiologic significance of these forms of tachycardia is of the greatest importance. Without it, the physician is inclined to regard such a form of tachycardia as an unfavorable sign and is impelled to take steps to induce a slowing. It is obvious that this compensatory acceleration must not be disturbed. To do so would cause a drop in blood pressure sufficient, perhaps, to endanger life itself. Fortunately there is no medicinal agent by which a compensatory sinus tachycardia can easily be abolished; otherwise many a patient with serious heart disease would have been helped prematurely to his grave through kindly intentioned but misguided treatment.

PALPITATION

The normally contracting heart is a vigorously beating organ, as any one who has watched exposed hearts in animals will recall. With each contraction it not only develops sufficient tension to expel a considerable volume of blood, but it rotates and twists about in the chest and gives a sufficiently sharp thrust against the chest wall to permit its registration by graphic apparatus. But one normally remains quite oblivious of this rather vigorous impact; in fact, it is recognized only with difficulty when attention is specifically focused on the precordium. This is explained by the statement that one becomes accustomed to the impact, much as one becomes unaware of the tick of a clock. Expressed in physiologic terms, a partial fatigue of the receptive mechanism obtains, so that stimuli which originally excite become subminimal or below the threshold value.

In order to be recognized as palpitation, the accelerated heart action must therefore be accompanied by a more forceful thrust. This often—though not necessarily—implies a more vigorous beat of the ventricles. As a result of changes in rate, particularly when pronounced, the heart becomes smaller and shifts its position slightly, and in this wise the apex thrust can be delivered to better advantage. Or a similar phenomenon may result when the total force of contraction is actually reduced but the order of excitation is changed. Any abnormal distribution of impulses over the ventricles materially affects the motions of the heart as a whole and thereby the intensity of the apex thrust. I have often been impressed by the much more vigorous motions of the exposed ventricles of dogs when a ventricular tachycardia is induced experimentally. I believe I am correct in the statement that patients also complain far more frequently of palpitation when tachycardia is of ventricular origin. But dynamic studies show that the ventricular force is actually reduced, not increased.

VERTIGO, SYNCOPE, CONVULSIONS AND RELATED SYMPTOMS

Aside from primary disorders of the nervous system or chemical alterations of the blood, cardiovascular disorders are chiefly responsible for the symptoms of dizziness, unconsciousness or convulsions. Anoxemia of the cerebral centers resulting from a pronounced fall of systemic blood pressures is the underlying cause. The cells of the cerebral cortex are extremely sensitive to a rather temporary but marked diminution of its supply of oxygenated blood and react promptly by manifestations of vertigo and unconsciousness. Experiments on dogs indicate that complete cessation of cerebral blood supply lasting more than eight minutes is only exceptionally followed by recovery. This is the reason that death follows so rapidly after ventricular fibrillation and that the revival of patients or animals after accidental electrocution presents such great difficulties.

Since the arterial blood supply is so intimately dependent on systemic pressures, any of the factors known to reduce arterial pressure, e. g., reduced systolic discharge, lowered peripheral resistance and decreased heart rate, can diminish cerebral blood flow beyond the critical level necessary to maintain cerebral functions. The syncope and convulsions that develop after severe hemorrhage and the fainting that occurs when a patient rises suddenly after convalescence are both due to a reduced venous return and a consequent reduction in systolic discharge. Extensive vasodilatation produced through nervous reflexes, as in fright or from administration of amyl nitrite, may lower systemic pressure sufficiently to produce tremors, convulsions or fainting. But sudden slowing or stoppage of the heart through psychic or reflex stimulation of the cardioinhibitory mechanism or through the development of complete auriculoventricular heart block are the most common causes of cerebral anoxemia. As a rule, unconsciousness and fainting are preceded by a period of dizziness and by ocular and auditory disturbances, the duration of which is inversely related to the degree of hypotension and to the rapidity of its development. During complete stoppage of the ventricles, the systemic pressure drops to zero within a few seconds and unconsciousness follows immediately. If the complete cerebral anemia is maintained beyond from fifteen to thirty seconds, recovery is always complicated by convulsions or epileptiform seizures. In short, the syndrome described by Stokes and Adams independently and often regarded as pathognomonic for heart block develops whenever the ventricles beat extremely slowly or stop entirely, regardless of the cause.

A physiologic analysis thus brings one to the realization that the symptoms of giddiness, syncope and convulsions are nature's method of announcing any considerable fall of arterial pressure; indeed, the reliability with which dangerous hypotension is thus registered cannot be equaled by the most careful application of blood pressure apparatus.

The unconsciousness and fainting that follow a lowering of systemic pressure are not only a warning signal; they also set in operation an automatic mechanism for relief. Since unconsciousness goes hand in hand with a loss of voluntary muscular control, the patient in falling tends to assume a more horizontal position. The retarding effect of gravity on the return of blood being removed, the systolic discharge increases and, if the heart is beating at all, usually elevates the arterial pressure above the critical level; thus consciousness is regained.

While symptoms of dizziness and fainting are commonly associated with disorders of the circulation that abruptly and rapidly diminish the cerebral blood flow, they are rarely associated with the most serious valvular and myocardial conditions found in chronic heart dis-

ease. The impairment of the cerebral blood flow and attendant anoxemia that ultimately develops lead to psychic phenomena of a different sort. A sense of mental haziness, impaired memory, stupor, drowsiness and hallucinations of sight, hearing and smell are among the more common symptoms noted. These forms of cerebral dysfunction are undoubtedly attributable to effects of moderate degrees of anoxemia. But that they are not newly developed manifestations is clearly demonstrated by the fact that all are acutely duplicated when normal individuals are submitted to the influence of high altitudes or low barometric pressures or are allowed to breath low oxygen mixtures.

It has generally been supposed that nervous tissue has but a low metabolic rôle, that the brain consequently needs only little oxygen but needs that little badly. More recent experiments indicate, however, that the metabolism of the brain does not differ greatly from that of other tissue. The rate of lactic acid formation in brain tissue appears to be higher than that of the body as a whole, and the normal blood flow per gram of brain substance is larger than that of skeletal muscle, heart, spleen or liver, being exceeded only by that of the kidney, the suprarenal and the thyroid.

It is not surprising, therefore, that cerebral activity should be seriously affected in advanced stages of decompensation; it is rather surprising that cerebral manifestations are no more severe and that they do not precede decompensation. The absence of manifestations on the part of the most sensitive indicator of circulatory insufficiency—the cerebral cortex—is the best evidence a physiologist could cite in support of the conclusion that the circulation is physiologically at par until decompensation sets in.

FATIGUE

Fatigue after slight or moderate exertion or even at rest is a constant accompaniment of many forms of advanced heart disease. Its significance can be properly understood only through an analysis of a similar phenomenon occurring in health after strenuous exercise. The two are caused by the same underlying phenomena, the only difference between the fatigue in health and that noted in patients with cardiac disease being the degree of exercise necessary to bring it on.

Although best usage restricts the term fatigue to a depression of physiologic function following activity, it is often loosely applied to general sensations that arise without relation to previous effort. The sensations of fatigue are known to every one, but it is not universally realized that they are but signs and symptoms of chemical changes that affect every tissue of the body. The glands, the sense organs and the central nervous system are just as susceptible to fatigue as the muscles. However, since the symptoms and disturbances of function are predominantly referred to the muscles, it is best to use the progressive decrease in the ability of muscles to contract as the criterion of what is going on in other cells of the body.

It has been demonstrated by different methods that the anaerobic production of lactic acid and its accumulation in muscular tissue is the ultimate cause of the progressive decrease in the strength of contraction. In intact animals, such an accumulation begins as soon as the demands of tissues for oxygen exceeds the ability of the circulatory and respiratory apparatus to deliver it. In the resting state of normal individuals, the supply of oxygen always exceeds the demand and even a considerable amount of muscular exertion may be undertaken before oxygen utilization equals the supply furnished through increased respiration and augmented circulation. When this occurs, a "steady state" is said to exist. In extreme exertion, on the other hand, the supply no longer meets the demand and an "oxygen debt" is incurred. Under such conditions, lactic acid accumulates chiefly in the muscles, but to a certain extent also in the blood. It is then that the signs and symptoms of fatigue develop. In short, decreased muscular efficiency and the sensations of fatigue are direct criteria of the existence of an oxygen debt and of the accumulation of lactic acid.

The more rapid development of fatigue in the presence of heart disease merely signifies a deficiency on the part of the cardiorespiratory system to meet the increased demands of the muscles during exercise. But since the respiratory apparatus functions in normal fashion except when secondary respiratory complications supervene, it is obvious that the heart and circulation are chiefly at fault. This circulatory deficiency does not, however, consist in an inability of the diseased heart to compensate; it is rather due to the fact that the heart's ability to augment minute output through acceleration or increased systolic discharge has already been called into action for the purpose of maintaining a normal circulation at rest. Hence, the physiologic ability to respond to exercise without the development of fatigue becomes a direct measure of the compensatory mechanism held in reserve by the heart; i. e., of its reserve power.

In a patient able to perform a moderate amount of work without fatigue the reserve power is good, a subject capable of only slight exertion has no great margin to call on, while the existence of continued fatigue even at rest denotes that all the compensatory mechanisms of the heart are unable to maintain an oxygen balance. The latter is the physiologic picture of cardiac decompensation. Clinical studies have shown that whenever this occurs the lactic acid content of the blood is increased even at rest, thus accounting for the perpetual existence of fatigue. Furthermore, it must be clear that the development of fixed acidosis in the bedridden patient is intimately linked with the phenomena responsible for decompensation, as well as those that underlie muscular prostration.

DYSPNEA

Dyspnea is probably the symptom of greatest diagnostic and prognostic importance in heart disease. But it is also a phenomenon that occurs in normal individuals after strenuous exertion. The only distinguishing feature between the dyspnea of health and that associated with cardiac disease is the degree of exertion required to bring it on; indeed, in the most advanced cases of heart disease it is constantly present even during rest.

Consequently, one must return to the information gained by a study of dyspnea produced in normal animals or man in order to understand that which nature produces in disease. The rate and depth of the respiratory movements are adapted to the needs of the body through a center in the medulla. Normally, periodic volleys of impulses are sent down the cord and thence over the cervical and brachial nerves to muscles concerned with thoracic enlargement. But the intensity of the stimulation is not great enough to induce a maximum contraction in such inspiratory muscles as the external intercostals, the scaleni and the diaphragm.

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Nor is their strength sufficient to penetrate the more resistant pathways connecting with expiratory muscles. Hence expiration is a passive act. Now the normal intensity, sequence and duration of successive volleys of stimuli emitted by the respiratory center appears to be controlled by the intracellular C_H of this center. When the intracellular acidity increases for any reason the normal inspiratory muscles not only contract more frequently, more vigorously and for a longer time, but new groups of inspiratory muscles are likewise thrown into action. This gives rise to hyperpnea; i.e., an accentuated breathing in which the depth of inspiration is increased and the rate becomes more frequent. Finally, as the intracellular acidity of the respiratory nerve cells rises to still higher levels, the intensity of the stimuli sent forth arguments to such an extent that the pathways to expiratory muscles are also penetrated; and expiration becomes forced. I suspect that the unpleasant character of this type of breathing is partly associated with stimulation of unaccustomed proprioceptive endings as expiratory muscles are involved. I therefore prefer to limit the term dyspnea to that stage of deep breathing in which forced expiration supervenes. These considerations enable us to lay down a first postulate, viz., that dyspnea, whether recognized as a disagreeable symptom by a patient with heart disease or as a sign by the physician, presents physiologic evidence that the intracellular acidity of the respiratory center has increased considerably. Further, the corollary that the degree of dyspnea is roughly proportional to the increase in intracellular C_H.

The more difficult questions now arise as to how and why the intracellular acidity of the respiratory center is increased in cardiovascular disease. Experimental evidence indicates that this is determined: (1) by the rate of acid formation; (2) by the rate of acid removal either through local oxidation or by mechanical export; (3) by the interchange of hydrogen ions between the blood and the respiratory cells and (4) by the buffering capacity of the cytoplasm comprising the respiratory center.

The first factor is probably concerned to the extent that the increased activity of the respiratory center results in an increased intracellular acidity and so assists in continuing dyspnea once it is inaugurated. But this can obviously not be at once a primary cause and an effect. Some other factor must be initially responsible.

The second factor must be carefully evaluated in the light of all clinical knowledge. Two mechanisms are conceivable: (1) owing to a sluggish circulation, an inadequate supply of oxygen may reach the center and hence the acid formed within the center may fail to be properly oxidized; (2) owing to a diminished arterial pressure and an increased venous stasis, lactic acid may not be washed away easily.

The first process is a remote possibility and can be concerned only in advanced decompensation, for, as already pointed out, the oxygen supply appears to be adequate to support normal cerebral processes and ipso facto is likely to be sufficient for the respiratory center. The latter may be concerned somewhat earlier and may possibly be responsible for orthopnea, as will presently be explained. But at the best, such modi operandi are difficult to picture except during comparatively advanced stages of circulatory failure. The advent of dyspnea, particularly after light exertion, occurs before any evidence of circulatory embarrassment can be detected. It is present when arterial pressures, minute volume, blood flow and circulation time measurements are practically normal, and before venous pressures are elevated or stasis is evident. Indeed, diminished ability to partake of moderate exercise without the occurrence of marked dyspnea is a symptom in many forms of incipient heart disease.

A consideration of the third factor, the possibility that the acidity of the respiratory center may be altered by changes in the chemical composition of the blood, recalls the rival current conceptions; viz., that an excess of fixed acids or an increase of carbon dioxide are chiefly responsible for the phenomenon of cardiac dyspnea. But as to the relative importance of the two, the best clinical opinions appear to differ. And well they may in view of the fact that some cardiac patients show a diminished carbon dioxide content of the arterial blood while other equally dyspneic patients present no evidence of fixed acidosis.

But at this juncture distinctions must be made clear. There is no doubt that dyspnea easily induced by exercise is always associated with hypercapnia. The quandary arises chiefly in explaining the persistent dyspnea of resting cardiac patients who present distinct evidence of lactic acid accumulation but show only a normal or diminished carbon dioxide content of their arterial blood.

It is obvious that the interchange of hydrogen ions between the blood and the respiratory center involves both the p_H of the blood and the relative rates with which ions diffuse from the circulating blood into the respiratory cells. For a long time the view held sway that the acidity of the respiratory center is regulated solely by the hydrogen ion content of the blood and that somewhat similar effects might be expected from a definite change in blood C_H, whether due to an increase of fixed acids or carbon dioxide or to a decrease in bicarbonate. Such a parallelism between changes in blood C_H and respiratory activity could be expected, however, only if the metabolism of the center were low and all ions diffused with equal facility. The bulk of experimental work indicates that this conception is untenable and that there is no conspicuous relation between C_H changes of the blood and activity of the respiratory center; indeed, injections of sodium bicarbonate which decrease C_H of the blood may, under certain conditions (e.g., hemorrhage), act as a respiratory stimulant. On the other hand, elaborate experimental work has never succeeded in controverting the idea that the respiratory center responds promptly to small changes in the carbon dioxide content of arterial blood. This is undoubtedly due to the greater ease with which carbon dioxide or the bicarbonate ion diffuse into cells.

In view of these considerations, it is highly improbable that the degree of fixed acid acidosis encountered even in uncompensated cardiac cases is capable of producing alterations in the C_H of the respiratory center sufficient to account for the dyspnea. In the first place, the degree of acidosis is never equal to that encountered in diabetes, and yet dyspnea is not a conspicuous feature in the latter disease. Furthermore, slow intravenous injections of lactic acid into experimental animals to a point just compatible with life never produce dyspnea, provided a natural compensatory blowing off of carbon dioxide is allowed to take place. On the other hand, if the free discharge of carbon dioxide is interfered with, or if the rate of carbon dioxide production is

stimulated, violent dyspneic symptoms at once occur. Under such conditions even a normal carbon dioxide content of the blood is accompanied by pronounced dyspnea. This perhaps supplies a key to the interpretation of dyspnea in resting clinical patients. Neither an excess of carbon dioxide, as in exercise, nor the existence of a fixed acidosis is separately responsible for the dyspnea. But a moderate grade of fixed acidosis combined with pulmonary congestion which prevents the compensatory elimination of carbon dioxide might easily produce augmented breathing in heart disease. Such a conception makes it possible to link up the coexistence of pulmonary congestion, encroachment on alveolar air spaces, and a reduced vital capacity. It also explains why improvement of the circulation, greater ease in respiration and an increase in vital capacity go hand in hand.

In the light of this conception, also, it appears to be a basic fact that impairment of the pulmonary circulation is the ultimate cause that prevents the free compensatory elimination of carbon dioxide. Were it possible to analyze the detailed dynamic changes that occur as decompensation progresses, it would probably also be found that the grade of dyspnea is roughly related to the decreasing efficiency of the heart. Thus, through physiologic analysis the conclusion is reached that the degree of dyspnea experienced by a cardiac patient at rest offers the simplest and most accurate method of measuring the performance of the heart pump.

ORTHOPNEA

The fact that the dyspnea of advanced heart disease is materially aggravated in the recumbent position must have attracted the attention of ancient observers. Nevertheless, knowledge as to the physiologic causes of this curious phenomenon is still meager. It furnishes a glowing example of the retardation of medical progress when clinical conditions do not lend themselves readily to experimental study on animals. As is usual, numerous theories as to its etiology are not lacking and one can do no better at present than to consider how well each fits into the clinical picture and is consonant with physiologic facts.

One conception holds that the sitting posture acts mechanically to increase the reserve air in the lungs; i. e., the volume content with the chest wall in the normal expiratory position. By increasing the mean volume of gases in contact with lung capillaries this should favor a better interchange of oxygen and carbon dioxide. Such an increased pulmonary capacity is attributed chiefly to the lower position of the diaphragm. This theory is supported by the observation that negative intrathoracic pressures are less, and in a measure by the finding that the vital capacity is somewhat increased on assumption of a sitting position.

According to a second conception, which is really an extension of the former, the increased elastic stretch of the lung by descent of the diaphragm, combined with the mechanical advantage gained for the shoulder and abdominal muscles, facilitates the act of forced expiration. This view is supported by the belief that the difficulty in orthopnea affects the act of expiration rather than the act of inspiration.

A third theory stresses the fact that a more perfect unfolding of the lungs occurs in the upright position. Attention is directed to the fact that imperfect alveolar ventilation tends to occur even in normal individuals in a recumbent position and that a tendency to slight anoxemia is rectified only by periodic deeper inspirations. To account for orthopnea on this hypothesis, however, it is necessary to assume that the inspiratory compensation is abrogated; an assumption for which there is no sound physiologic basis.

In contrast to those theories which attribute orthopnea to benefits from the mechanical mechanisms involved in the interchange of air, a fourth conception holds that improvement is due to a better minute flow of blood. This is supposedly accomplished by an enlargement of the aperture of the vena cava as the diaphragm assumes a lower position. Experimental work makes it exceedingly doubtful, however, that the latter mechanism materially improves the venous return. But this would appear to be immaterial in decompensation because the amount of blood available for filling is already in excess, owing to venous engorgement. Deficiency in venous return is not the cause of diminished ventricular discharge in cardiac failure, and it is quite incomprehensible how it could enhance the minute volume. This hypothesis may therefore be disregarded.

Finally, the view has recently been advanced that the sitting position benefits respiration because gravity favors a drawing of blood from the head and in so doing relieves venous congestion and improves the flow through the respiratory center. In this way, acid metabolites found within the respiratory center would more easily be washed away and the C_H of the respiratory center would decrease. Ernstene and Blumgart may be congratulated in offering an explanation of orthopnea which accords so well with recent physiologic evidence that the control of the respiratory mechanism is effected through changes in intracellular C_H. It is to be hoped that they may have added opportunities for adducing still more valid evidence in its support.

An understanding of the cause of orthopnea is more than an academic accomplishment; it involves more than the mental gratification which always follows a solution of nature's mysteries. The ultimate physiologic meaning of the phenomenon for the body as a whole is concerned in the solution of the riddle. If the sitting posture relieves dyspneic breathing through mechanical respiratory mechanisms, then the asphyxial distress in the recumbent position is necessarily associated with asphyxial changes in all tissues of the body. But if it is due to medullary stasis, it does not necessarily predicate a condition of generalized asphyxia. In other words, is the asphyxial distress experienced by orthopneic patients to be interpreted as evidence that a condition of general tissue asphyxia is already in progress or is it an advance warning of such an impending misfortune? Does a patient by assuming a sitting posture alleviate an existing asphyxial condition or does he thereby prevent its occurrence? These and similar far reaching questions are involved in a clearer physiologic understanding of orthopnea.

CYANOSIS

Cyanosis is one of the conspicuous clinical signs in a variety of cardiac disorders but is present in most pronounced form in mitral disease and in congenital defects of the heart. Its diagnostic significance is intimately bound up with the fact that the mucous membrane and skin over favorable parts of the body form a natural colorimeter by which the degree of oxygen saturation or unsaturation of capillary blood can be easily and directly evaluated.

The color of the skin is not a perfect colorimeter, however, since it is determined not only by the quantity

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of reduced hemoglobin in the capillaries but is modified also (1) by the thickness and pigmentation of the layers overlying the smaller vessels and (2) by the number, diameter and length of the capillaries themselves. The effective blood pigment which transmits the bluish or purplish tinge to the surface of the skin is reduced hemoglobin. Lundsgaard has shown that when the hemoglobin content falls below 30 per cent cyanosis cannot develop, which explains its absence in valvular disease complicated by anemia. These factors must be carefully evaluated in employing the color of the skin as a criterion of oxygen unsaturation of capillary blood.

If we leave out of consideration changes in the character and total amount of hemoglobin—which is permissible for our purposes—an abnormal amount of reduced hemoglobin in the capillaries is due either to an abnormal oxygen unsaturation of the arterial blood or to an increased rate of oxygen abstraction by the tissues. There is no doubt that deficient saturation of arterial blood or a state of anoxic anoxemia is chiefly responsible for the cyanosis found in congenital cardiac defects and in advanced forms of myocardial and mitral disease. In these instances, nature but duplicates the reactions that normal individuals show when submitted to low oxygen tension. Many clinicians and experimenters whose opinions carry great weight believe that this is also the cause of cyanosis in earlier stages of compensated mitral disease. The conception is generally held that pulmonary congestion which begins with the very onset of mitral stenosis diminishes the interchange of oxygen to such a degree that arterial blood is not fully saturated. Careful analysis of blood drawn from the radial arteries of such patients indicates, however, that complete saturation obtains unless decompensation supervenes or pulmonary emphysema complicates the picture. It is therefore impossible to attribute the early cyanosis of mitral disease to anoxic anoxemia. In short, it should be constantly kept in mind that, while cyanosis gives unfailing evidence of unsaturated capillary blood and probably of anoxemia of the tissues, it does not necessarily indicate that arterial blood is unsaturated. Such knowledge is of practical importance, for the presence of cyanosis in compensated mitral disease does not imply that an existing pulmonary congestion has progressed to the extent that a satisfactory interchange of oxygen is interfered with.

Since the cyanosis in compensated mitral disease cannot be referred to anoxic anoxemia, other causes must be sought. It has been suggested that the decreased output of the heart leads to diminished flow through the tissues and that this may be a cause. There are two valid objections to such a conception: In the first place, reduced minute discharge of the heart in normal subjects, whether due to slowing or to reduced stroke volume, is marked by pallor, not by cyanosis. In the second place, gasometric determinations of minute volume and measurements of blood flow in the extremities fail to demonstrate any diminution. Until clearer evidence is submitted in its support, the hypothesis that diminished cardiac output is responsible for cyanosis cannot be accepted.

Cyanosis may be produced in normal subjects by inducing a more rapid utilization of oxygen. Since the metabolic rate of the entire body is often increased in patients with cardiovascular disease, the possibility must be considered that the greater demand of oxygen by tissues of the skin may cause greater oxygen depletion of capillary blood. But it is difficult to understand how cardiac involvement alone can produce alterations in the metabolism of tissues in general; it is far more probable that the observed increase in basal metabolism is due entirely to increased muscular action associated with dyspnea.

Venous congestion when present is one of the important factors in intensifying the cyanosis of mitral disease. By retarding the capillary flow, blood remains longer in contact with the tissues and hence is more completely robbed of its oxygen. But this does not fully explain the earliest evidence of cyanosis recognizable long before venous pressures have risen or clinical evidence of venous congestion exists. Partly by a process of exclusion and partly because cyanosis develops primarily over commonly exposed portions of the body, it must be inferred that some peripheral vascular factor capable of slowing the capillary blood stream must be concerned. Neither the causes nor the physiologic mechanisms are understood, however.

It should be kept in mind that the state of tissue anoxemia, mirrored in the intense cyanotic color of the skin during cardiac decompensation, exists also in internal organs and eventually disturbs their functions to such a degree that so-called secondary symptoms are produced. Among these are anorexia, flatulence, nausea and vomiting, and jaundice. But among all the secondary phenomena for which decompensation is noted, oliguria and edema stand out predominantly.

OLIGURIA AND EDEMA

An adequate discussion of these early and constant manifestations of cardiac failure cannot readily be compressed into a short space. Nevertheless an analysis of the physiologic manifestations of heart disease would be incomplete without such an attempt. As is well known, the urinary secretion in advanced stages of heart disease becomes greatly reduced in amount, is highly concentrated and dark, and frequently contains albumin. Functional kidney tests show decreased function of the kidneys, especially as regards their ability to excrete water and salts.

In order to understand the physiologic reasons for this it is necessary to recall that, according to modern theories of urinary secretion, the glomeruli filter out a dilute urine containing all the constituents of the blood plasma with the exception of the colloids. In passing through the tubules, water and certain useful substances are reabsorbed, while others no longer of value in the physiologic economy of the body are passed on and excreted. The rate of glomerular filtration is governed by (*a*) the effective glomerular pressure, i. e., the hydrostatic capillary pressure minus the osmotic pressure exerted by the blood colloids; (*b*) the number of glomeruli in operation, and (*c*) the physical characteristics of the capsular membrane.

The first two factors are probably not concerned greatly in producing the oliguria of chronic heart disease. But since the kidney glomeruli are extremely sensitive to lack of oxygen their permeability is altered by an impaired renal circulation. The appearance of albumin in the urine is one of the first evidences of such a change. But this does not necessarily imply an increased permeability to crystalloids and water; on the contrary, their excretion tends to be decreased. Such a condition is especially unfortunate as it leads to the retention of water, salts, acid radicals and nitrogenous waste products, which favor the development of acidosis, uremia and edema.

With failure of the kidneys to eliminate water and salts in adequate amounts, it is but a step to assume that

this accounts for the edema; in other words, that it is essentially of renal origin. However, the cardiovascular edema does not admit of so simple an interpretation; the deficient urinary excretion is at most a secondary factor. The primary cause is associated with inadequate return of blood to the heart. But the exact mechanism through which stasis causes edema is still under discussion. Following the lead of Ludwig and later of Starling, physiologists quite generally believed that edema due to stasis is explainable by the physical processes of filtration and osmosis. While these physical processes undoubtedly contribute, the trend of recent investigations strongly suggests that Cohnheim was probably right when he suggested that altered permeability of capillaries due to anoxemia or malnutrition must occur. Briefly, the essential facts may be stated thus: As a first step, dilatation of peripheral capillaries occurs; this is followed by changes in permeability of such a nature that the passage of water and salts from the blood stream is facilitated but their reabsorption is impaired; in short, edema is a definite physiologic sign that circulatory failure has progressed to such a stage that the life processes of many body cells are beginning to suffer.

CARDIAC PAIN

An intelligent discussion of cardiac pain is not at present possible, for ideas as to the ultimate mechanisms producing pain remain wholly speculative; the anatomic pathways for pain impulses are not known with certainty, and physiologic facts with regard to the nervous mechanisms are extremely meager. Nevertheless, patient clinical observations and experiences derived from attempts at surgical relief, combined with more limited experimental data on animals, have furnished a working hypothesis in regard to the mechanisms of cardiac pain. The viscera are apparently not supplied with afferent fibers that ordinarily relay pain sensations directly to the cortex. Under certain conditions—not at all clearly understood—afferent impulses from the viscera may, however, form synaptic connections with the posterior root ganglion cells. In so doing they give rise to pain sensations that are not referred to the organs from which they arise but to somatic areas innervated by sensory fibers of the posterior root ganglion cells with which contacts are made. In addition, the constant bombardment of posterior root cells produces in them a state of hyperexcitability with the result that hypersensibility and often reflex muscular rigidity develop in the somatic regions supplied by the spinal cord segments involved. If the stimulation of viscerosensory terminals becomes very severe, cells in contiguous spinal segments may be affected, in which case the referred pain and hyperesthesia involve larger skin areas.

In this way it is possible to explain why referred pains resulting from stimulation of afferent cardiac nerves are sometimes distinctly limited to circumscribed regions below the sternum and over the pericardium and at other times spread over the whole left side of the chest, or even radiate down the left arm and up the neck as far as the mastoid region.

A careful study of the distribution of such pains and of the hypersensitive areas indicates that, as a rule, spinal segments between the eighth cervical and the fifth dorsal are involved. Occasionally, however, involvement may extend upward as far as the second cervical and downward as far as the seventh dorsal segments. Since the inferior and middle sympathetic nerves to the heart also reach the spinal cord between the eighth cervical and seventh dorsal regions, it was logical to assume that pain impressions from the heart travel over these roots rather than over the vagus and depressor nerves.

While this interpretation has received a measure of support from neurologic, physiologic and clinical studies, many facts seem to indicate that other pathways also may be concerned. Were this the only route, more consistently good results might be expected from surgical sympathectomy and enucleation of sympathetic ganglions. Cutler, reviewing the subject from a surgical as well as a physiologic standpoint, aptly remarks: "The failure of any procedure to alleviate pain in all cases leaves us with the definite impression that much more is to be learned."

But aside from this uncertainty there is also lack of information as to the distribution of sensory branches. Histologists have so far discovered no nerve terminals in the ventricular myocardium or its blood vessels that can safely be inferred to carry afferent impulses. Chiefly for this reason, Sir Clifford Allbutt maintained to the end of his life that cardiac angina could arise only from stimulation of the nerve fibers terminating in the outer coats of the aorta. But a great deal of clinical and even a little experimental evidence exists that anoxemia of the heart muscle—regardless of whether it is produced by coronary embolism, thrombosis or sclerosis or whether it is due to cardiac failure, overexertion and tachycardia—is capable of inaugurating serious attacks of cardiac pain.

Should it be assumed that as yet unrecognized sensory fibers are distributed with motor and vasomotor fibers along the course of blood vessels? Or is it necessary to revise the physiologic conceptions that supposedly efferent sympathetic fibers terminating in muscle cells or blood vessels may carry afferent impressions? Finally arises the question as to how anoxemia can produce stimulation. If through a rapid formation of lactic acid which is known to enhance irritability only temporarily and then to depress it, why does the pain persist; and why is it periodic rather than constant? Clearly, factors quite unknown appear to act as the physiologic irritants of intracardiac terminals, wherever situated.

Fundamental questions such as these must be solved hand in hand with clinical questions of a seemingly more practical nature before the meaning of cardiac pain can be elucidated. But the importance of a scientific method of approach should not be forgotten. New facts must be established for their intrinsic worth rather than with a view of supporting a favored theory.

Beaumont, whose patience and perseverance for the sake of science and humanity is being honored today, expressed this well in the preface to his book when he said: "They [i. e., my researches] are experiments made in the true spirit of inquiry, suggested by the very extraordinary case which gave me an opportunity of making them. I had no particular hypothesis to support; and I have therefore honestly recorded the result of each experiment exactly as it occurred. . . . I submit a body of facts which cannot be invalidated. My opinions may be doubted, denied, or approved, according as they conflict or agree with the opinions of each individual who may read them; but their worth will be best determined by the foundation on which they rest—the incontrovertible facts."

May we as seekers of scientific truths in medicine have the wisdom to reflect often upon these sentiments!

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Clinical Notes, Suggestions and New Instruments

FATAL THYROID CRISIS FOLLOWING INJECTION OF A VARICOSE VEIN

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CHICAGO

One of the most dreaded and serious complications of exophthalmic goiter or primary hyperthyroidism is the acute thyroid crisis. It is a well established fact that acute thyroidism usually occurs in patients in whom the disease has been present and may often be precipitated by apparently minor events. Acute thyroid crises have been known to follow fatigue, intercurrent infections and mental or physical stimulation; and fatal cases have been known to occur following an automobile accident, an attack of influenza, an attack of tonsillitis, the opening of a peritonsillar abscess, or an operation for acute appendicitis.

Thyrotoxic patients are poor risks when any form of treatment not aimed at the elimination of the thyrotoxicosis is attempted. It is recognized that even the simplest procedures, unless absolutely necessary, should be postponed until the hyperthyroidism is controlled, for fear of precipitating an acute hyperthyroidism.

This is a report of a fatal case of thyroid crisis precipitated by the injection of a varicose vein. A review of the literature fails to reveal a similar case. Complications following the injection of varicose veins are so uncommon that the average practitioner is injecting various solutions with apparent impunity, not realizing that danger often lingers in the offing.

REPORT OF CASE

G. C., a man, aged 40, was referred to one of us with a diagnosis of hyperthyroidism. The history was that he had been well until eight months before he presented himself. He then became nervous, complained of tachycardia, loss of 20 pounds (9 Kg.), exaggerated appetite, weakness, exophthalmos, increased sweating and tremor.

Examination showed the patient to be fairly well nourished. There was a moderate exophthalmos with positive von Graefe, Stellwag and Mocbius signs. The lungs were normal. The heart was slightly enlarged to the left. There were no murmurs. The abdomen was normal. The pulse rate was 142, the blood pressure 160 systolic and 80 diastolic. There was a small ulcer in the region of the left ankle which had broken down two months before. A number of small veins were present, particularly at the upper margin of the ulcer. Urinalysis was negative. There were 4,800,000 red cells with 9,800 white cells. The differential count was normal. The Wassermann and Kahn tests were negative. The basal metabolism test was plus 66. He was advised to enter the hospital to be prepared for thyroidectomy.

Because of pain in the ulcer on the leg the patient asked to have the veins injected. He had previously had an ulcer which had been treated by injection and Unna's boot with complete relief. The ulcer had remained healed for approximately ten months only to break down again two months previously. We refused to inject his veins in the presence of a high grade thyrotoxicosis but advised him to enter the hospital. He was told that during his stay in the hospital (while being treated with compound solution of iodine) an Unna's boot would be applied. We felt confident that during this period in bed, before and after his operation, the ulcer would probably heal. If, however, there was failure to heal after this period, we would then consider injecting the small veins in the region of the ulcer. The patient acquiesced and promised to enter the hospital the following day. Unfortunately, this was not done.

Two days later, one of us was called by the patient's wife, who informed us that her husband was seriously ill. The patient was found desperately sick, thrashing about in bed, delirious, vomiting almost constantly, with diarrhea, flushed hot skin, and marked exophthalmos. The pulse was so rapid that it was difficult to count. The temperature was 104.2 F. by axilla.

From his wife it was learned that on the evening after leaving our office he went to a neighboring physician and asked to have the veins injected. This was done. Within a few hours he complained of terrific pain at the site of injection. The physician was called and gave directions to apply hot wet dressings to the ankle. Several hours later the man became very restless, perspired profusely and began to vomit and to have a distressing diarrhea. Later the restlessness became extreme and was followed by delirium.

Examination of the site of injection revealed an indurated reddened area at the upper border of the ulcer, undoubtedly an extravasation of the injected material.

As we were unable to give the patient iodine either by mouth or by rectum, a stomach tube was inserted and compound solution of iodine was given in this manner. Within ten hours, approximately 100 cc. of the solution was given. Five hundred cubic centimeters of 1 per cent dextrose in physiologic solution of sodium chloride was given intravenously. Morphine in one-fourth grain (0.015 Gm.) doses was given to control the nervousness. The patient seemed to rally somewhat, but the following morning his condition was more critical. Sodium iodide was given intravenously (7½ grains or 0.5 Gm.), repeated twice. The patient was packed in ice in an attempt to reduce the hyperpyrexia, which had now reached 105.4 F. by axilla. In spite of all our measures the patient rapidly sank, going into a deep coma, and died.

SUMMARY

1. Thyroid crisis is one of the most serious complications of thyrotoxicosis.

2. All procedures, unless absolutely necessary, should be avoided until the thyroidism is controlled.

3. A fatal case of crisis developed from an injection for varicose veins.

310 South Michigan Avenue.

MERCURIC CHLORIDE POISONING WITH RECOVERY FOLLOWING THE USE OF SODIUM THIOSULPHATE

HOWARD E. MARCHBANKS, M.D.; C. HERBERT SMITH, M.D., AND HARRY L. CHURCH, M.D., PITTSBURG, KAN.

As one goes through the literature on mercuric chloride poisoning, one is struck with the comparatively few patients who have survived massive doses of the drug. For this reason we report this case because in some respects, which will be brought out, we believe it to be unique.

The literature is so vast that to attempt to review it would be beyond the scope of our intentions. However, in preparing this report, we have scanned the literature on the subject and find few, if any, cases reported in which the patient has taken as large an amount of the poison and retained it as long as our patient did and recovered.

Hayman and Priestly[1] reported a case in which the blood urea nitrogen reached 247 mg. on the nineteenth day of treatment and on infusion of physiologic solution of sodium chloride the urea nitrogen was reduced to 83 mg. and eventually came to normal, leaving no damage to the kidney. Both kidneys had been decapsulated in this patient with apparently little result.

In 1920, Ravaut[2] described the influence of small injections of sodium thiosulphate on the course of a severe arsenical dermatitis. This report was followed in 1922 by that of McBride and Dennie,[3] in which a regular and sustained course of sodium thiosulphate was advocated for the emergency and follow-up treatment of arsenical, mercurial and lead poisoning.

In 1928, Goldblatt[4] reported the results of his experiments on the emesis interval in mercurial poisoning. He stated that in cases in which the patient had not vomited within thirteen minutes the prognosis was bad. In six fatal cases reported, the shortest interval was 15 minutes and the longest was 120 minutes. None lived with an interval over 15 minutes.

1. Hayman, J. M., Jr., and Priestly, J. T.: Am. J. M. Sc. **176**: 510 (Oct.) 1928.
2. Ravaut, P.: Presse méd. **28**: 73 (Jan. 28) 1920.
3. McBride, W. L., and Dennie, C. C.: Treatment of Arsphenamine Dermatitis and Certain Metallic Poisonings, Arch. Dermat. & Syph. **7**: 63 (Jan.) 1923.
4. Goldblatt, S.: Cincinnati J. Med., January, 1928.

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SATURDAY, FEBRUARY 21, 1931

THE INCREASING PREVALENCE OF PELLAGRA

Recent reports by the U. S. Public Health Service indicate that the prevalence of pellagra has been increasing for several years in this country. The progress in the study of the disease, the newer insight into its probable etiology, and the vaunted prophylactic as well as curative measures applicable to the malady have awakened the hope that uncertainty is about to be replaced by confidence in its management. Yet government records [1] recently submitted to Congress contained the ominous information that the pellagra death rate computed in 1924 as 2.5 in each hundred thousand of population rose steadily to 5.7 in 1928 and that in 1929 it was 5.5.

Pellagra is not a new disease, though its prevalence in the United States was not appreciated until the present century. In most countries it has been regarded as an essentially chronic malady confined almost entirely to the poorer classes in rural communities; but this has not been equally true in the United States, where it has been found to affect both the white and the Negro races. Pellagra was described nearly two centuries ago, as early as 1735, under the designation of mal de la rosa; but the present appellation (pelle agra, rough skin) dates from Francisco Frapolli's description in 1771. A hospital was early established in Milan for the treatment of the disease, a three-volume treatise, De Pellagra, being published during the years 1786 to 1789.[2]

Several theories regarding the cause of pellagra have been propounded. The oldest—the zeist hypothesis—attributed the disorder to the use of spoiled corn, as it occurred conspicuously among maize-eating groups. Subsequently pellagra was classed by many in the category of infectious diseases due to a specific microorganism. There was much in its incidence to suggest a microbiotic etiology, but the latter has been abandoned largely because of the pioneer investigations of Goldberger and his associates in the Public Health Service. They have insisted on a dietary origin for pellagra, placing it in the category of so-called deficiency diseases. Pellagra does not occur in persons who regularly consume a well ordered mixed diet. The sufferers are likely to have subsisted on a regimen in which the protein content was low and of poor biologic quality, with a paucity of fruits and green vegetables. Goldberger believed that he had found an analogue of human pellagra in the so-called black tongue of dogs. This, like pellagra, yields to corrective dietary measures.

Recently, and again through Goldberger's leadership, attention has been called to the effect of vitamin deficiencies in provoking the appearance of pellagroid symptoms. The existence of a pellagra-preventing vitamin, designated successively as P-p, B_2, and G according to current usage, has been postulated. This is part of the vitamin mixture formerly designated as water-soluble B. It has become possible to separate products such as yeast, rich in the vitamin B "complex," into parts, of which one is conspicuously antineuritic and another protective against a form of dermatitis that arises, in experimental animals, in its absence. Milk, meat and yeast are relatively rich in vitamin G, in which the cereal grains are poor. On such considerations, prophylactic measures have been based.

A somewhat different hypothesis has just been formulated by Bliss [3] at the Tulane University of Louisiana School of Medicine, who ventures the suggestion that pellagra is in reality an iron-deficiency disease. He points to anemia as a frequent concomitant of pellagra. He also notes that the foods which are supposed to contain liberal quantities of vitamin G (beef, liver, egg yolk, yeast) are all iron-containing foods (some of them being among those containing more iron than any other known biologic product), while the pellagra-producing diet of poor farmers of the South (molasses and corn bread) is extremely poor in iron. Bliss reports results of "a very encouraging nature" from iron therapy with pellagra patients. In severe cases the iron was administered intravenously, and in milder cases it was given orally. Animal experiments also were encouraging. It would, of course, be extremely premature to endow these observations with the dignity of proof; but many clinical students of pellagra still believe that the last word regarding the nature of the disorder has not been spoken. There are, indeed, reasons for assuming that pellagra as seen in man represents a syndrome—a group of symptoms including stomatologic, gastro-enteric, cutaneous and nervous manifestations, each of which may have independent pathogenic origin. The hypothesis of multiple deficiencies with consequent protean disease characteristics is somewhat appealing. It has again become "open season" in the hunt for explanations. The most recent morbidity statistics encourage a vigorous pursuit.

1. Press dispatches, Dec. 6, 1930.
2. Vanderhoof, Douglas: Pellagra, in Cecil's Textbook of Medicine, Philadelphia, W. B. Saunders Company, 1927.
3. Bliss, Sidney: Science **72**: 577 (Dec. 5) 1930.

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THE PREMATURE CHILD

Recent years have witnessed an increasing consideration of the problem of the prematurely born child. The postpartum care has been greatly improved with respect to incubator facilities, the heating and ventilation of the environment, diet and nursing care. From the point of view of physical equipment and hygienic care, real progress is to be anticipated. There are, however, many records that promote discouragement in the contemplation of the effect of premature birth on the subsequent growth and development of the child. For example, in an elaborate review of the subject based on a study at the Children's Clinic of the University of Vienna, Capper [1] wrote in 1927:

> The fate of immature children is not enviable; almost one half of them die during the first year of life. Of those that remain alive, the majority are physically as well as mentally underdeveloped. Some of them show a late mental development; others show a condition of psychic infantilism, if the term may be used in its nonspecific sense; while still others show permanent and severe mental diseases. When they are passed in review, one is surprised at the variety and amount of abnormality encountered, almost a regular "pathologic museum." In brief, the immature infant becomes the backward school child and is a potential psychopathic or neuropathic patient and even a potential candidate for the home for imbeciles and idiots.

Fortunately, this disheartening conclusion may be offset by the psychologic investigation recently completed in the Sarah Morris Hospital for Children, Chicago, by Mohr and Bartelme.[2] The care of their prematurely born patients had evidently been superior. The data regarding their physical development need not be reviewed here.[3] A comparison of performances of fifty individual prematurely born children with those of their forty full term siblings, on the basis of the relation of mental age to chronological age in each case, revealed no significant difference in the mental development of the two groups, if due allowance was made for the period of prematurity. The prematurely born children did not differ from full term children in the time of the beginning of eruption of teeth, in onset of walking, in beginning of talking and in the learning of bladder control, if correction was made for the period of prematurity. The smaller prematurely born children were consistently a little later in these developments, but again the difference was minimized if this correction was made. Furthermore, in "personal-social" behavior the performance of the prematurely born children was consistently relatively superior. This may be attributable to the unusual care and attention offered prematurely born children or to their additional opportunities for social experience. In motor performances the children were relatively poor. Those who weighed relatively more at birth tended to do better on the tests for mental development. Of course it would be absurd to disregard the hazard that premature birth presents. The Chicago records were by no means devoid of unfortunate cases. According to Mohr and Barthelme, hemorrhage and other injury at birth result in consequences to prematurely born children that do not differ from those clinically noted among the children born at full term. If they occur more frequently among the prematurely born, they constitute an extra hazard of prematurity. The important feature of this behavior research is its optimistic outlook. Its implication is that adequate opportunities must be provided for the care of those who are handicapped by premature birth.

1. Capper, Aaron: The Fate and Development of the Immature and of the Premature Child, Am. J. Dis. Child. **33**: 443 (March) 1928.
2. Mohr, G. J., and Barteime, Phyllis: Mental and Physical Development of Children Prematurely Born, Am. J. Dis. Child. **40**: 1000 (Nov.) 1930.
3. They are given by Hess, J. H.; Chamberlain, I. M., and Lundeen, E. C.: Premature Infants, Pennsylvania M. J. **33**: 429 (April) 1930.

BIOCHEMISTRY IN THE UNITED STATES

Physiologic chemistry—or biochemistry, as it has been commonly designated more recently—has long since come of age. The subject has become an important and integral part of the study of medicine and the practice of the art. The special technic of biochemistry has been introduced into clinical diagnosis to such an extent that it competes in prominence with physical procedures and with bacteriologic and immunologic methods of examination and research. A recent writer [1] has remarked that today it is quite safe to state that in the United States there is hardly a university worthy of the name that does not have on its staff one or more competent investigators in physiologic chemistry and a well equipped laboratory with resources adequate for at least some lines of research in this field. Added to these centers of research are the many special laboratories connected with the larger hospitals of the country where investigations of a chemicophysiologic character are conducted; the many research institutions and foundations with their large endowments, where many biochemists of national reputation are to be found; and, lastly, the various government bureaus at Washington with their well equipped laboratories and trained workers who have contributed largely to the development of knowledge of a chemicophysiologic nature in many directions.

Despite this current situation there was a time in this country, within the recollection of physicians still living, when an American student desirous of making progress in physiologic chemistry had no recourse other than going to Germany for the knowledge and experience he needed to help him on his way. He might be well trained in chemistry, according to the standards of that date, but he would be wholly lacking in the knowledge of methods, in the proper way of approach, for the study of physiologic problems. In an elucidating review of the development of physiologic chemistry in the United States Prof. Russell H. Chittenden, the dean of living American biochemists, points out that the first definitive laboratory of physiologic chemistry in America for the instruction of

1. Chittenden, R. H.: The Development of Physiological Chemistry in the United States, New York, Chemical Catalog Company, 1930.

students was established in the Sheffield Scientific School at Yale University in 1874, under his charge.

Less than sixty years has brought a degree of progress far beyond the dreams of the most ardent enthusiasts of the latter part of the nineteenth century. Forty-three years ago (Dec. 30, 1887) occurred the organization of the American Physiological Society, which took under its wing most of the professional biochemists of that period. The society now numbers more than 400 members and controls its own professional journal. In a few months the American Society of Biological Chemists, which also publishes a research journal, will celebrate its quarter-centennial. It was organized in 1906 to relieve the pressure in the parent society, with the purpose "to further the extension of biochemical knowledge and to facilitate personal intercourse between American investigators in biological chemistry." The entire development of this fundamental prerequisite of medical progress still partakes of the characteristics of youth with all its potencies for development. Little wonder that Chittenden has concluded that "there would seem to be good ground for the belief that the future of physiological chemistry in this country is full of promise, and that what has been accomplished is but the forerunner of more nearly perfect knowledge."

Current Comment

LOSS OF PANCREATIC JUICE AND ACID-BASE BALANCE

The pancreatic juice is a digestive fluid of major importance. In connection with the succus entericus and the bile it exerts a powerful hydrolytic effect on fats, carbohydrates and proteins. In contrast to the gastric juice, the external secretion of the pancreas is definitely alkaline, containing about 0.5 per cent of sodium carbonate. When the ducts are cannulated and the secretion led to the outside, serious digestive difficulties result. However, the fatal consequences are probably due not to the removal of the digestive enzymes alone but, in no inconsiderable degree, to concomitant loss of inorganic ions from the body, notably fixed base. Recent studies on animals by Dragstedt [1] show that loss of pancreatic juice is accompanied by changes in the composition of the blood that indicate a condition of acidosis. For the first five days after the pancreatic fistula had been established, large volumes of Ringer's solution were given intravenously and the animal was in good condition. Weakness and depression promptly occurred on discontinuance of the injections, and death occurred in from four to six days. There was a decrease in plasma base, in chloride and in bicarbonate, and the concentration of hydrogen ions increased. At the same time the urea in the blood increased. These evidences of loss of base in the pancreatic juice under the conditions of the experiment emphasize the usual reabsorption of base from the intestine and recall the importance of the internal circulation of compounds in the body. Former studies by Dragstedt and Ellis [2] on the fatal effect of complete loss of gastric juice and the remedial influence of sodium chloride solution show that the chloride secreted in gastric juice also is absorbed again into the blood. It is believed that iron is subject to a similar reabsorption; while after secretion by the liver the bile salts pass into the blood stream again with the fatty acids. Substances that play an important part in physiologic economy and that must be provided preformed in the food are not likely to be wasted by the body under ordinary conditions.

1. Dragstedt, L. R.; Montgomery, M. L.; Mathews, W. B., and Ellis, J. C.: Proc. Soc. Exper. Biol. & Med. **28**: 110 (Nov.) 1930.

2. Dragstedt, L. R., and Ellis, J. C.: Am. J. Physiol. **93**: 407 (June) 1930.

NEW YORK REGULATES BLOOD DONORS

The department of health of New York City has adopted codes and regulations governing blood donors. These regulations provide for the registration and supervision of blood donors according to definite rules. A "blood donor" means "any person who holds himself out as willing to dispose of his blood, or who offers his blood, or whose blood is used for transfusion purposes, for a fee." No person can act as a blood donor in the sense just indicated without a certificate of registration from the department of health. This certificate is good for one year only. The applicant for registration must furnish the report on an official form by a licensed physician, giving the results of a competent physical examination made not longer than seven days before the application is presented. No person may be registered who is below standard in weight; whose blood is not negative on the Wassermann or the Kahn test; who has a positive syphilitic history or who exhibits suspicious scars or symptoms of syphilis or who gives a history of malarial infection or who presents evidence of any disease of the heart, hyperthyroidism, asthma, status lymphaticus, tuberculosis, venereal disease or any communicable disease or evidence of drug addiction; whose blood group has not been determined, or who has been found to be a "dangerous universal donor." Every certified donor must keep a personal record book furnished him by the department of health, with personal description, photograph, signature, blood group, reports of physical and other examinations, and the transfusions in which he acts as donor. Not more than three weeks can elapse between his giving blood in transfusion and a new physical examination, the results of which are to be recorded in his blood donor's registration book. "No blood donor shall be accepted whose hemoglobin is found to be less than 85 per cent of the normal for the method employed." Again, no donor shall be used whose blood has not been found to be negative to standard tests for syphilis by the department of health within six months before a transfusion. By this test and by the repeated physical examinations, syphilitic infection since certification should be detected. Finally, immediately prior to transfusion, the physician in charge must examine the donor to determine whether he is in a normal state at that time. The regulations provide

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also for full records and reports of transfusions by physicians and hospitals, which are transmitted to the department of health or, in the case of certain hospitals, are always accessible to its inspectors. While "no transfusion shall be made unless from a registered blood donor," it is provided that "in the case of an emergency a husband or wife, a parent or child or a relative or friend may be used as blood donor." The certificate of registration is revocable in case the donor contravenes any regulation or gives indications of syphilitic, tuberculous, malarial, typhoid or any other communicable infection or of having given too much blood. Agencies for blood donors may not be maintained without permit from the department of health and may not employ any other than certified donors. It is evident that the New York regulations have been worked out with great care under expert advice, both scientific and administrative. The regulations aim by careful and repeated examinations and tests to exclude unsuitable persons from acting as blood donors. Obviously, this object cannot be attained fully without the willing cooperation of physicians and hospitals. This is said to be the first official regulation of blood donors, and they will serve as models for other efforts in the same direction. The number of persons offering to sell their blood appears to be increasing, especially of late on account of unemployment, and the best interest of the patient and the public requires more careful, more systematic supervision of blood donors than at present. The health department of New York is to be congratulated on having taken such an important step toward proper regulation.

Association News

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Hints

The American Medical Association broadcasts at 10 a. m. on Monday, 10:45 on Tuesday, 10:45 on Thursday, and 10 o'clock on Saturday, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week is as follows:

February 23. We Need Pure Air.
February 24. If Your Child Is Hurt.
February 26. Home or Sanatorium for Care of the Tuberculous.
February 28. Use Your Doctor As a Health Guide.

Five minute health talks may be heard over the Columbia Broadcasting System daily except Sundays and Holidays from 12 to 12:05 p. m.

The program for the week is as follows:

February 23. The Mechanics of Smell.
February 24. What People Believe.
February 25. Alchemy.
February 26. Height and Weight.
February 27. Man's Marvelous Machinery.
February 28. The Caduceus.

THE PHILADELPHIA SESSION

Special Exhibit on Varicose Veins in the Scientific Exhibit

The Committee on Scientific Exhibit of the Board of Trustees has decided to continue the special exhibit dealing with the treatment of varicose veins, including the injection method. The following have been appointed as members of the committee: Géza de Takáts, M.D., chairman, Chicago; Claude F. Dixon, M.D., Rochester, Minn., and Howard M. Kern, M.D., Baltimore. In addition there has been appointed an advisory committee consisting of George E. Brown, M.D., Rochester, Minn.; John Homans, M.D., Boston; George P. Muller, M.D., Philadelphia; Walter B. Sistrunk, M.D., Dallas, Texas, and H. H. Trout, M.D., Roanoke, Va.

The committee plans to present in the form of charts the indications and contraindications of injection treatment; the type of solutions used; the possible errors in technic; untoward symptoms during and after treatment; dangers, and end-results. The combination of injections with ligation of the saphenous vein and the radical excision of veins will receive consideration; especial emphasis will be given to the prevention and treatment of necrosis following injection treatment and on the conservative and surgical treatment of chronic ulcers of the leg.

In addition, arrangements will be made for the demonstrations on patients in small groups, as this part of the exhibit created so much interest last year. The tables shown in the exhibit will be compiled in pamphlet form and given out at the exhibit to visiting physicians.

CONTRIBUTIONS FOR MEDICAL SALON IN PERSHING HALL

The sum contributed this week for the Pershing memorial in Paris brings the total to $1,884.60. A list of those who have contributed during the current week follows:

Col. Thomas J. Burrage, Portland, Maine
T. J. Williams, M.D., Evanston, Ill.
Louis M. Tomlinson, M.D., Harveyville, Kan.
H. B. Hawthorne, M.D., West Mineral, Kan.
H. D. Manley, M.D., New York
E. A. Hannum, M.D., Cleveland
F. A. Rupp, M.D., Lewistown, Pa.
David Adiger, M.D., New Orleans
P. J. Sarma, M.D., Chicago
A. R. Ellison, M.D., Buffalo
R. Roslin White, M.D., Somers Point, N. J.
William Rosenberg, M.D., Cleveland
C. H. Peete, M.D., Warrenton, N. C.
William H. Gordon, M.D., Detroit
Lee F. Hunt, M.D., Anderson, Ind.
Walter M. Simpson, M.D., Dayton, Ohio
O. E. Fink, M.D., Danville, Ill.
Charles Wolf, M.D., New York
Joseph A. Pessolano, M.D., Albany, N. Y.
J. A. Link, M.D., Springfield, Ohio
F. T. vanBeuren, Jr., M.D., New York
Fred H. Harrison, M.D., Connellsville, Pa.
H. H. Hammel, M.D., Tecumseh, Mich.
L. J. Bragman, M.D., Syracuse, N. Y.
J. Salem Rubin, M.D., Los Angeles
Col. E. L. Ruffney, Fort Riley, Kansas
Charles E. Montague, M.D., Wakefield, Mass.
Anders Frick, M.D., Chicago
Frank Billings, M.D., Chicago
J. A. McDevitt, M.D., Gulfport, Miss.
Clarence V. Clemmer, M.D., Oak Sane, Philadelphia
Reginald R. Walker, M.D., Washington, D. C.
Walter T. Parker, M.D., Owosso, Mich.
P. Brooks Kelly, M.D., Boston
Charles Newberger, M.D., Chicago
W. Emmett Schribner, M.D., New York
Edgar A. Fisher, M.D., Worcester, Mass.
William Kelly, M.D., Yuncheng, South Shansi, China
James W. Bunce, M.D., North Adams, Mass.
Medical Association of Northern Berkshire, North Adams, Mass.
M. C. Bergheim, M.D., Hawley, Minn.
Louis Harris, M.D., Brooklyn
George E. de Schweinitz, M.D., Philadelphia
C. S. Wilson, M.D., Belleville, Ill.
H. S. Rubinstein, M.D., Baltimore
M. G. Minner, M.D., Chicago
Doster Buckner, M.D., Fort Wayne, Ind.
Charles W. Olsen, M.D., Chicago
Harry S. Berman, M.D., Detroit
D. E. Ehrlich, M.D., New York
M. H. Mathewsian, M.D., Louisville, Ky.
I. M. Heller, M.D., New York
O. L. Friedman, M.D., New York
Irving Swartz, M.D., Camden, N. Y.
E. Albert Aisenstadt, M.D., Picher, Okla.
LeRoy J. Wheeler, M.D., Great Bend, Kan.
Joseph H. Beattie, M.D., Dobbs Ferry, N. Y.
Henrietta M. Johnson, M.D., Broken Bow, Neb.
J. E. Miller, M.D., Steubenville, Ohio
J. B. McAllister, M.D., Harrisburg, Pa.
S. T. Armstrong, M.D., Katonah, N. Y.
E. G. Johnson, M.D., Broken Bow, Neb.
J. S. Akehurst, M.D., Baltimore
I. H. Dillon, M.D., Wellington, Kan.
Samuel Lilienthal, M.D., Denver
S. A. Cosgrove, M.D., Jersey City
Milton J. H. Grand, M.D., New York
M. M. Dansky, M.D., Brooklyn
E. J. Doering, M.D., Chicago
Harry H. Epstein, M.D., Trenton, N. J.
Charles W. Perkins, M.D., Norwalk, Conn.
A. K. Wilson, M.D., Jacksonville, Fla.
W. C. Langston, M.D., Little Rock, Ark.
George H. Garrett, M.D., Del Rio, Texas
John M. Spaulding, M.D., Los Angeles
George Byron Hyde, M.D., Wilmington, Vt.
Wylie L. Collins, M.D., Nantucket, Mass.
Melvin A. Wardwell, M.D., Penobscot, Maine
F. J. Pitham, M.D., Greenville Jct., Maine
R. W. McKean, M.D., Fort Worth, Texas
Arthur W. Walker, M.D., Riverside, Calif.
C. N. Peeler, M.D., Charlotte, N. C.
Eugene P. Pendergrass, M.D., Philadelphia
Elbert S. Sherman, M.D., Newark, N. J.
A. Russell Sherman, M.D., Newark, N. J.
Mecosta County (Mich.) Medical Society
C. H. Douthirt, M.D., Clayton, N. M.
W. D. Haines, M.D., Cincinnati
Lawrence E. Henderson, M.D., Watertown, N. Y.
S. T. Forsythe, M.D., Cleveland
W. H. White, M.D., Andagoya, Colombia
George W. Hoglan, M.D., Columbus, Ohio
Martin J. Seid, M.D., San Francisco
Joseph Leidy, M.D., Philadelphia
Jacob J. Ahlfs, M.D., Conde, S. D.
Henry K. Seelaus, M.D., Philadelphia
Cambria County Medical Society, Johnstown, Pa.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARIZONA

Bills Introduced.—S. 53 proposes to create a board of orthodontic examiners and to regulate the practice of orthodontia. H. 122 proposes to authorize counties, or combinations thereof, to establish and maintain general hospitals. H. 133, to amend that portion of the medical practice act which states to what persons the act shall not apply, proposes that "nothing in this chapter shall inhibit service in an emergency, or the domestic administration of family remedies, or the practice of religion or treatment by prayer; nor shall it apply to any commissioned medical officer in the United States Army, Navy or Public Health Service, in the discharge of his official duties; nor to any licensed practitioner from another state when in actual consultation with a licensed practitioner of this state."

ARKANSAS

Bill Introduced.—S. 135, if enacted, would, apparently, exempt chiropractors from the provisions of the basic science act and would make the board of chiropractic examiners the sole judge of the eligibility of all applicants for a license to practice chiropractic.

CALIFORNIA

Bills Introduced.—S. 409 proposes to raise to $5 the annual fee which licensed dentists are required to pay the board of dental examiners. A. 477 proposes to create a state medical library in the state library at Sacramento.

John P. Shepherd Fined for Illegal Practice.—John P. Shepherd, Santa Rosa, is said to have pleaded guilty through his attorney, recently, to a charge of violating the medical practice act, and agreed that no further advertising would appear showing his name prefixed by the letters "Dr." or in any way indicate that he was conducting any form of practice. He is said to have paid a fine of $100. Shepherd's name appeared in the city telephone directory with the prefix "Dr." and in the classified section under the heading "Physicians and Surgeons"—M.D., Hillside Sanitarium. It was alleged further that he professed to treat tuberculosis. Shepherd is said to have applied for a license to practice in Indiana, June 4, 1897, stating in his affidavit that he had been engaged in the practice of medicine, surgery and obstetrics in Fountain, Mellott County, since December, 1896, and claiming that he had been a practitioner in the state for eleven years preceding the date of the affidavit. Records of the Indiana State Board of Medical Registration and Examination indicate that Shepherd was licensed under a clause in the medical law of 1897 which provided for licensure of all persons who had been engaged in the practice of medicine in Indiana for ten years prior to the passage of the act of 1897. No diploma or evidence of graduation was required of those furnishing a record of ten years' practice. Shepherd seems to have claimed to have graduated from the University of Toronto Medical Faculty in 1886. When he was interviewed by a special agent of the California board in January, 1930, he is said to have claimed to be a graduate of Jefferson Medical College. The records of the American Medical Association fail to show that Shepherd is a graduate of either Toronto or Jefferson, or of any other reputable institution.

COLORADO

Bill Introduced.—H. 169 proposes to create a board of chiropractic examiners and to regulate the practice of chiropractic, authorizing such practitioners "to practice chiropractic as taught in chiropractic schools and colleges" and to use the titles "Doctor" or "Dr." in connection with their names, when accompanied by the word "Chiropractor" or the letters "D.C."

CONNECTICUT

Bills Introduced.—S. 31 proposes to amend the law, with respect to the manner in which the board of examiners of midwives is selected, by giving the governor the power to appoint the board. H. 976, to amend the pharmacy practice act, proposes to authorize the board of pharmacy to issue permits to general dealers to sell proprietary medicinal compounds or preparations put up separately in sealed packages by licensed pharmacists. However, nothing herein contained shall authorize such permittees to sell any compound containing, among other things, neonal, amytal, dial, or any preparation containing barbituric acid. S. 215, to amend the law requiring physicians to report cases of certain industrial poisonings, seeks to provide that information obtained on investigation made as a result of the report shall not be admissible as evidence in any action at law or of the workmen's compensation act. S. 333 proposes to exempt from the law requiring the licensing of all private hospitals any institution operated or maintained by any religious or fraternal organization having a board of managers or directors. H. 156 would, if enacted, permit licensed physicians to give contraceptive information and advice to patients.

Coordination of Medicine and Dentistry at Yale.—Dr. Milton C. Winternitz, dean, Yale University School of Medicine, discussed the school's plan to promote the integration of dentistry and medicine, February 4, before the New Haven Dental Association. There are now four graduate dentists taking the regular course in medicine at Yale, and each year two such dentists are to be admitted, so that eventually there will be at all times eight dentists taking the course. B. G. Anderson, D.D.S., formerly associated with the University of Minnesota, Columbia University and Peiping Union Medical College as dental surgeon, has been appointed to head the clinical activities in dentistry at Yale. He will be in charge of the dental suite in which dental work for ambulatory and hospital patients unable to pay will be conducted. An investigation, supported by the Rockefeller Foundation, is being made of the teeth and bacteria found at their roots in relation to both acute and chronic diseases. An endeavor is being made to discover why extraction of the teeth often alleviates diseases of the joints, heart, kidneys and eyes, and to determine the significance of devitalized teeth, of bacteria associated with them, and of the destruction of the tissues forming the bed of the tooth. The plan, it is hoped, will create a liaison group which will draw physicians and dentists together to their mutual advantage.

DELAWARE

Bills Introduced.—H. 90 proposes to create a board of chiropractic examiners and to regulate the practice of chiropractic, defined as "a drugless health system, the basic principle of which teaches that disease is caused by interference with the transmission of nerve impulses. . . . The diagnosis, the location of misaligned or displaced vertebrae of the human spinal column, the procedure preparatory to and the adjustment by hand of such misaligned or displaced vertebrae of the spinal column and its articulations, by any method not including the use of drugs, surgery or obstetrics, nor any branch of medicine, nor osteopathy, for the purpose of relieving such interference." S. 43, to amend the law regulating graduate nurses, proposes (1) to authorize the board of nurse examiners to formulate a curriculum and rules to be complied with by training schools and hospitals desiring to be accredited by said board, and (2) to require applicants for licenses to have had at least one year of high school work prior to their nursing education. After Jan. 1, 1934, all applicants must have four years of high school work.

GEORGIA

Dr. Copanaris Honored.—Dr. P. Copanaris, director of hygiene of the Republic of Greece, was tendered a banquet by the city of Savannah, February 3. Dr. Copanaris has been visiting health departments in America as the guest of the International Health Division of the Rockefeller Foundation.

Midwives in Georgia.—Four thousand midwives were practicing in Georgia at the beginning of this year, the state board of health reports. During the past year nurses of the state board of health gave instruction to 3,729 midwives. It is said that one third of the births in the state are attended by these women and that more than 20,000 babies born each year in Georgia are unattended by a physician.

No Fatality from Smallpox.—According to the state department of health, the 1930 death rate showed a decrease of 1.6 per cent from the rate for 1929. Twenty-one causes of death contributed most to the number of deaths reported, eleven showing decreases from 1929, while ten showed increases. Among those showing decreases are accidents, diphtheria, influenza, malaria, nephritis, pellagra, scarlet fever and smallpox, and those showing increases: cancer, cerebral hemorrhage, diabetes, diarrhea and enteritis under two years, dysentery and

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heart disease. The greatest decrease was in smallpox, which, for the first time in many years, failed to show a death, and the greatest increase was in measles, which showed a death rate 309.7 per cent higher than in 1929.

ILLINOIS

Bills Introduced.—H. 192 proposes to provide that, in distributing funds of an estate, expenses attending last illness, including physician's bill, funeral expenses and necessary costs of administration, shall have priority over all other claims against the estate. S. 68 proposes to authorize the governing board or council of cities, villages, counties and schools to employ public nurses. Such nurses must be licensed by the department of registration and education.

Chicago

Rare Publications.—A copy of volume I of the *Medical Repository*, which appeared in 1798 and which was the first American medical journal, is among the exhibits at the library of the University of Illinois College of Medicine in a display of early medical Americana. There is also a collection of the writings of Benjamin Rush, an autographed copy of a work by Marion Sims, and a copy of the first medical dictionary compiled by an American and Beaumont's book on digestion. Photographs of men famous in the medical history of the United States are also included.

Personal.—Dr. Henry Schmitz, professor of gynecology, Loyola School of Medicine, received the gold medal of the Radiological Society of North America for 1930, for achievement in the science of radiology in its application to diseases of women.——Dr. Harry C. Rolnick was appointed, February 4, as consulting urologic surgeon for the Illinois State Industrial Commission.——The showing of three motion pictures with sound took place, February 11, at St. Luke's Hospital; the pictures are the work of Dr. Harold O. Jones, associate professor of obstetrics and gynecology, Northwestern University Medical School. The titles are "Suspension of the Uterus for Retrodisplacement"; "Salpingectomy and High Fundic Amputation for Residues of Tubal Disease," and "Vaginal Hysterectomy for Uterine Prolapse."

INDIANA

Bill Introduced.—H. 342 proposes to make it unlawful to sell or supply any food, drink, medicine or toilet preparation intended for human use, or any antifreeze agent for motor vehicle radiators, containing wood alcohol, methanol or methyl alcohol. All sales must be made in containers labeled "deadly poison—wood alcohol."

Society News.—Dr. Leroy W. Hubbard, Warm Springs, Ga., will address the Indianapolis Medical Society, February 24, on "Development of Warm Springs Foundation for the Treatment of Paralysis Due to Poliomyelitis."——Albert Stump, LL.D., Indianapolis, addressed the Tippecanoe County Medical Society, La Fayette, February 12, on "Special Legal Rights and Duties of Professional Men."——Dr. Louis E. Phaneuf, Boston, addressed the February 12 meeting of the Indianapolis Academy of Medicine and Surgery on "Transverse Cervical Cesarean Section."

IOWA

Bills Introduced.—H. 128 proposes to accord liens to hospitals, physicians and nurses, treating persons injured in accidents, on any settlements or judgments obtained by the injured persons by reason of the accidents. H. 149 proposes to require every professional licentiate to "keep his license publicly displayed in the place in which he practices." H. 150 proposes to require pharmacists to inform purchasers of certain designated poisons of the character of the poison and to ascertain that the drugs are to be lawfully used. H. 159, to amend the pharmacy act, proposes (1) that those "who manufacture drugs, poisons or medicines for sale at either wholesale or retail" shall be deemed to be engaged in the practice of pharmacy, (2) to define a pharmacy as "a drug store in which the prescriptions of licensed physicians, surgeons, dentists or veterinarians are compounded and sold by a registered pharmacist or where drugs, medicines or poisons are exposed or sold at retail," (3) to prohibit all persons from allowing any one who is not a licensed pharmacist to sell or dispense any drugs, poisons or medicines, unless it is done under the immediate personal supervision of a licensed pharmacist, and (4) to prohibit a registered pharmacist from allowing his certificate, as a licensed pharmacist, to remain in or on display at any place of business unless he is legally employed there. H. 174 and S. 110 propose to amend the osteopathic practice act by authorizing osteopaths to prescribe or dispense internal curative medicines and by designating osteopaths as "physicians." H. 129, to amend the law requiring the reporting of venereal diseases to local boards of health by physicians, proposes to require physicians to make such reports to the state department of health, except when cases occur in the jurisdiction of full time municipal or county health officers, when such reports shall be sent to such officers. H. 155 proposes to exempt tools, instruments and books of dentists from execution. H. 224 proposes (1) to permit the state department of health to refuse to renew a license to practice medicine, on any of the grounds for which a license may be revoked by the district court, and (2) to permit a practitioner whose license has been revoked, either by action of the department of health in refusing to renew the license or by the district court, to have his license renewed by order of the state board of health on recommendation of the commissioner of health. H. 223, to amend the medical practice act, proposes that any person doing anything that under the statute constitutes the practice of medicine shall be deemed to be practicing medicine even though he is acting only as the representative of someone else. H. 225 proposes to permit osteopaths to use the prefix "Doctor" if followed by the letters "D.O." or "O.S.," and chiropractors to use the prefix "Doctor" if the letters "D.C." follow the name. Even optometrists are allowed to use the title provided the letters "Opt." or "Optometrist" follow the name.

KANSAS

Bill Introduced.—H. 315 proposes to authorize the governing body of any city of the second or third class, owning and operating its own light and water plant, to furnish water, electric light and power to any hospital within the corporate limits of such city, free of charge, or at such reduced rates as the governing body may set.

MAINE

Bills Introduced.—S. 250 proposes to authorize the sterilization of certain socially inadequate inmates of state institutions. H. 340 proposes to create a board of examiners of chiropodists and to regulate the practice of chiropody, defined as the treatment "medically, mechanically, or surgically of the ailments of the human foot without the use of anesthetics other than local." H. 408 proposes to create a state department of hospital aid, to consist of the commissioners of the department of public welfare ex officio, to provide medical and surgical treatments for persons whose resources are insufficient to pay for such treatments.

MASSACHUSETTS

Personal.—Dr. George W. Gale, who is 94 years old, is planning to retire as a member of the Saugus Board of Health when his term expires in March, after nearly thirty-five years' service.——Dr. Stephen Rushmore has been appointed a member of the board of registration in medicine to succeed Dr. Horace D. Arnold, resigned.——Dr. Frederick Carpenter Irving has been appointed professor of obstetrics at Harvard University Medical School, effective September 1.

Bills Introduced.—H. 83 proposes to direct the department of public health to formulate a plan for the care and treatment of persons suffering from rheumatism and allied chronic conditions. H. 781 proposes to create a board of examination and registration for magnetic healers and to regulate the practice of magnetic healing. No educational requirements whatsoever are set forth in the bill nor is there any mention of what the examination will consist other than that it "includes the subject of nerves." H. 914 proposes to regulate the practice of chiropractic, therein defined to be "the method, science or practice of locating and adjusting the subluxations of the articulations of the human spine and its adjacent tissues. No . . . chiropractor shall, unless registered as a physician or surgeon, . . . practice obstetrics, or administer drugs or perform surgical operations by the use of instruments, nor shall treat, unless under the directions of a physician, eruptive, erosive or temperative disturbances coming under the accepted definitions of contagious, infectious or reportable diseases." H. 977 proposes (1) to require the consent of a patient before a physician may remove any organ of the body and after removal to require the physician to explain to the patient the necessity for such removal; (2) to extend to six years the statute of limitations on actions of contract or tort for malpractice, negligence, error

or mistake against physicians; (3) to provide that a physician shall not handle a patient in such a way as to cause pain without first explaining that pain will result from such handling and obtaining permission therefor from the patient. H. 1069 proposes to provide a penalty for any person who shall be convicted of obtaining medical or surgical treatment from any dispensary on false representations as to his place of residence or as to his pecuniary circumstances.

MICHIGAN

Bill Introduced.—H. 88 proposes that, subject to the approval of the board of supervisors, a county health department shall have the power to employ such physicians and nurses, full or part time, as shall be necessary to carry out its work.

Professors Appointed.—Dr. Norman F. Miller, professor of obstetrics and gynecology at the State University of Iowa School of Medicine, Iowa City, since 1926, has been named professor of obstetrics and gynecology and Bates professor of diseases of women and children at the University of Michigan Medical School, Ann Arbor, to succeed Dr. Reuben Peterson, resigned. Dr. Fred Jenner Hodges, lecturer in radiology, University of Wisconsin Medical School, Madison, was appointed professor of roentgenology to succeed the late Dr. Preston M. Hickey.

MINNESOTA

Bills Introduced.—S. 376 proposes to make it permissive for boards of education to establish physical and health education in the schools under their jurisdiction. Apparently, the present law makes the establishment of these courses mandatory. S. 436 authorizes cities of the fourth class to establish and maintain city hospitals. H. 406, if enacted, would, apparently, repeal the provision of the pharmacy act that allows any general dealer whose shop is more than 2 miles from a drug store to sell any commonly used medicine or poison which has been put up for such use by a registered pharmacist.

Medical Journal Celebrates Sixtieth Anniversary.—The *Journal-Lancet*, which represents the medical profession of Minnesota, North Dakota, South Dakota and Montana, celebrates its sixtieth anniversary with the February 1 issue. The jubilee number contains, in addition to scientific papers, articles on "The Future of Medicine in the Northwest," "The Development of Preventive Medicine in the Northwest," "Development and Progress of Pediatrics in the Northwest," "Early History of the Hennepin County Medical Society," and histories of the North and South Dakota state medical associations.

Violations of Basic Science Law.—Averlino Fernandez, formerly of Monterey, Mexico, was sentenced to one year in the workhouse at St. Paul, January 12, following his plea of guilty to a charge of practicing healing without a basic science certificate, according to the state board of medical examiners. Fernandez had been in St. Paul about sixty days at the time of his arrest. He had had no medical experience but said he had worked in a drug store in Monterey. His practice was confined to Mexicans in St. Paul.——John Hugh Lally operated an office at the St. Paul Hotel, St. Paul, during the month of November, 1930, and departed rather hastily from the state after the state board of medical examiners instituted an investigation of his activities. He was found guilty at Winnipeg, January 9, of treating persons contrary to the provisions of the Medical Act of Manitoba, Canada, and fined $100 and costs. The Minnesota board cooperated with the Manitoba authorities.

MISSOURI

Bill Introduced.—H. 302 proposes to provide that no form of vaccination or inoculation shall hereafter be made a condition precedent for the admission of any person to any public school, college or university or for the exercise by any person of any right, the performance of any duty or the enjoyment of any privilege.

MONTANA

Bill Introduced.—H. 254 proposes to amend the workmen's compensation act by (1) providing that the term "physician" as used in the act shall include practitioners of chiropractic, and (2) providing that where an injured employee is under a hospital contract and the hospital or medical facilities accorded are insufficient for the case, the injured employee may, at any time, be placed where adequate hospital facilities are obtainable, and the cost thereof shall be a legal charge against the one contracting to furnish hospital facilities.

NEBRASKA

Bills Introduced.—H. 220 proposes to regulate the practice of cosmetology. H. 280 proposes that in counties having no regularly appointed physician or where it is necessary for the county board to employ other physicians to render proper medical aid to the poor, such physicians so employed shall receive, as compensation, 50 per cent of the prevailing charge for similar services in such counties.

Society News.—The Custer County Medical Society was addressed, Dec. 11, 1930, by Drs. Theodore H. Koefoot, Broken Bow, on "Albuminuria," and Roy D. Bryson, Callaway, "Injection Treatment of Varicose Veins."——Drs. Robert B. Eldrege, Abram E. Bennett and Willis H. Taylor, Omaha, spoke on vaccines, serum treatment of infantile paralysis and modern obstetric procedures, respectively, before a recent meeting of the Cass County Medical Society, Weeping Water.——A symposium on anterior poliomyelitis was conducted before the Cedar, Dakota, Dixon, Thurston and Wayne Counties Medical Society, Wakefield, Nov. 20, 1930; the speakers were Drs. Allen C. Starry, Robert H. McBride, Archibald F. O'Donoghue and William D. Runyon, all of Sioux City, Iowa.——Drs. William P. Wherry and Arthur D. Dunn addressed the Omaha-Douglas County Medical Society, January 27, on "Chronic Hyperplastic Maxillary Sinusitis and Its Relation to General Medicine"; Dr. Maine C. Andersen spoke on "Ventricular Paroxysmal Tachycardia." Drs. Rollin Russell Best, Omaha, and Weaver A. Rush, Beatrice, addressed the society, February 10, on "Operative and Nonoperative Treatment of Peptic Ulcers" and "Teeth Medically and Radiologically Considered," respectively.

NEW HAMPSHIRE

Bills Introduced.—H. 114 proposes to include cosmetics in the list of substances covered by the state pure food and drug law. H. 115 proposes to amend the pharmacy practice act by (1) making it the duty of the state board of health to cooperate with the state board of pharmacy in analyzing samples of drugs sold in violation of the act, (2) making it unlawful for any person not a registered pharmacist or an assistant pharmacist in a drug store registered in accordance with the provisions of the act, to compound, dispense, or sell any potent drug, and (3) permitting the general sale of proprietary medicines, except proprietary medicines containing acetylsalicylic acid, barbital and other compounds of the barbituric acid series, amidopyrine, antipyrine, acetanilid, acetphenetidin, cinchophen. H. 187 proposes that during the first thirty days after an injury to an employee, an employer, coming within the terms of the workmen's compensation act, shall furnish the employee reasonable medical and hospital services. H. 168 proposes to permit two or more neighboring towns to make appropriations for the joint support of the same physician, hospital, clinic or health center.

NEW JERSEY

Pharmacists Change Examination Dates.—The Board of Pharmacy of the State of New Jersey announces that hereafter semi-annual examinations will be given in April and October for both the registered pharmacist and assistant pharmacist certificates in place of the examinations formerly conducted in January and July. The board will conduct examinations for registered pharmacists, April 9 and October 15, and for assistant pharmacists, April 10 and October 16. Applications must be in the hands of the secretary at least thirty days before the date of the examination.

Health at Camden.—Telegraphic reports to the U. S. Department of Commerce from eighty-one cities with a total population of 36 million, for the week ended January 31, indicate that the highest mortality rate (22.3) appeared for Camden, and the rate for the group of cities as a whole was 15.2. The mortality rate for Camden for the corresponding period last year was 18.4, and for the group of cities, 13.7. The annual rate for eighty-one cities was 14.2 for the five weeks of 1931, as against a rate of 13.1 for the corresponding weeks of 1930. The rates published in this summary are based on midyear population estimates derived from the 1930 census. Cities whose population was found to be less than was indicated by estimates heretofore used will therefore appear as having a higher death rate than usual, even though there may have been no material increase in the actual number of deaths.

Bills Introduced.—S. 63, to amend the workmen's compensation act, proposes to eliminate the statutory definition of hernia, as ordinarily a disease and only rarely an accident, and

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as presumptively of either congenital or slow development in the absence of a tear or puncture of the abdominal wall. Proof of the industrial origin of a hernia may be by preponderance of evidence and need not as at present be conclusive proof. Time for the manifestation of symptoms after the event alleged to have caused the injury, within which industrial origin is to be presumed, is extended. Detailed provisions of the present law defining the relative responsibilities of employer and employee for the treatment of an industrial hernia will be eliminated if this bill be passed. A. 105 proposes to permit any two or more associations or corporations maintaining a hospital, infirmary, dispensary or clinic in the same or adjoining counties, and supported in whole or in part by private charity, to merge or consolidate into a single corporation.

NEW YORK

The End of New York Health Demonstrations.—Eight years after its inauguration, the New York health demonstrations project of the Milbank Memorial Fund terminated, Dec. 31, 1930. In both Cattaraugus County and Syracuse, local agencies have assumed the maintenance of the health activities growing out of the demonstrations, and the future cooperation of the fund in these localities will be confined to the support of research or other experimental projects growing out of the local demonstration experiences. The metropolitan demonstration will continue as an individual project. The board of supervisors of Cattaraugus County recently voted to increase the budget for the Cattaraugus County Board of Health. The decrease in deaths among infants is one notable result of the program and is indicated in a resolution as one of the reasons for the board's continued support of the activity.

Bills Introduced.—S. 385 proposes that a certificate of birth, in addition to the information now required, shall contain the mother's finger prints and foot prints of the child. A. 143 proposes to prohibit experiments on living dogs. A. 492, to amend the workmen's compensation act, proposes to allow injured employees to select their own physicians. A. 573 makes it unlawful for any person to possess any apparatus designed for the use of opium. S. 648 proposes to amend the law in relation to vaccination so as to provide that whenever smallpox exists in any school district the school authorities shall exclude from school for a period of fourteen days every child or person who does not furnish a certificate from a duly licensed physician of successful vaccination or show evidence by scar of a successful previous vaccination. If new cases of smallpox continue to develop after the expiration of fourteen days, the school authorities may renew such order for another period of fourteen days. No minor child shall be compulsorily vaccinated without the consent of its parent or guardian and no child shall be excluded from any public school in the absence of smallpox in the school district. A. 574 proposes to make it unlawful to obtain habit-forming drugs from one physician while receiving treatment from another, without disclosing that fact. A. 584, to amend the workmen's compensation act, proposes to make all occupational diseases, arising out of an employment, compensable.

New York City

Personal.—Dr. Francis W. White has been appointed surgeon director to the throat department of the Manhattan Eye, Ear and Throat Hospital, and Dr. Edmund Prince Fowler, surgeon director to the ear department.——Dr. Karl Landsteiner of the Rockefeller Institute for Medical Research was recently elected an honorary member of the Royal Swedish Academy of Science.—— Dr. Augenette Parry was recently decorated by the Greek government in recognition of service rendered sick and destitute refugees at the American Women's Hospitals, Kokinia, Piraeus, Greece.——Dr. William W. Peter, New York, will go to China in February to help organize a health program for the Nationalist government. He is expected to spend about eight months in this work. Dr. Peter was one of the founders of the China Council on Health Education of which he served as director from 1911 to 1926.

NORTH CAROLINA

Bill Introduced.—S. 117, to amend the laws relating to professional nursing, proposes (1) that the examining board be designated "the North Carolina Board of Nurse Examiners," (2) that all applicants have a high school education, (3) apparently, that all persons who practice nursing come within the provisions of this act except "the nursing of the sick by friends or members of the family."

NORTH DAKOTA

Bill Introduced.—S. 109 proposes to designate as illegal conduct, and as such sufficient cause for the revocation of a license to practice dentistry, certain forms of advertising of a character tending to deceive or mislead the public.

Society News.—Dr. Julius O. Arnson, Bismarck, and Attorney Fred T. Cuthbert, Devils Lake, addressed the Devils Lake District Medical Society, January 28, on "Clinical Recognition of the Cardiac Irregularities with Remarks on Management of Congestive Heart Failure" and "Legal Medicine," respectively.

Twelve Deaths from Food Poisoning.—Botulism poisoning from pea salad served at a party at the farm home of Edward Hein, Grafton, January 29, is believed to be the cause of twelve deaths reported up to February 2. Eight persons who also attended the gathering had shown no symptoms at the time of this report. The toxic material affected all the victims in practically the same manner and with one exception all were conscious until death and suffered no extreme pain. All complained of dizziness and impaired vision as the first symptoms, followed by failing sight and congested lungs. The midnight lunch consisted of "buns and wieners, olives, apples, two kinds of cake, and a pea salad, which included home canned peas, sliced cheese and some mayonnaise dressing placed on a lettuce leaf." Five of the eight members of the Hein family were among the victims. The three surviving children ate none of the salad; one of the other four survivors ate a small amount, apparently with no ill effect, and the other three ate generous portions but became sick a short time afterward and vomited.

OHIO

Bill Introduced.—H. 140 proposes to provide that the state reimburse hospitals for care and treatment of indigent hurt in automobile accidents.

State Health Officer Appointed.—Governor White appointed Dr. Harry G. Southard, Marysville, state health commissioner of Ohio, January 23, to succeed Dr. Charles A. Neal. Dr. Southard has been health commissioner of Union County and Marysville since 1924, it is reported.

Dr. Heuer Goes to New York.—Dr. George J. Heuer, surgical director of the Cincinnati General Hospital and Holmes professor of surgery in the University of Cincinnati College of Medicine, has been appointed surgeon-in-chief of the New York Hospital and professor of surgery in Cornell University, effective July 1. He will undertake the organization of the surgical department in the new plant of the New York Hospital-Cornell Medical College Association.

Another Unit in Medical Center Opened.—The Lakeside Hospital, one of the University Hospitals of Cleveland, Western Reserve University School of Medicine, was recently opened. The eight story building is white brick, corresponding with the Institute of Pathology of the university, and has a capacity of 378 beds. The Leonard P. Hanna House, a private pavilion, extending at right angles from one end of Lakeside Hospital, was opened at the same time. With the opening of this unit, the building program of the University Hospitals, announced four years ago (THE JOURNAL, March 26, 1927, p. 1012), is practically complete. The nurses' dormitory was opened in October, 1930, and the central service building in December.

OREGON

Bills Introduced.—S. J. Res. 12 proposes to create a narcotic hospital commission to consider the establishment of a narcotic hospital. S. 54 proposes to regulate the sale of veronal, barbital chloral hydrate, adalin-luminal and all acid diethyl barbituric preparations. S. 53 proposes a new act to regulate the sale, possession or use of narcotic drugs and marihuana. S. 163 proposes to abolish the state board of barber examiners and to vest all its powers and duties in a state barber examiner. H. 202 proposes to accord liens to hospitals, physicians and nurses treating persons injured in accidents, on settlements of judgments obtained by the injured persons by reason of such accidents. Such liens, however, shall not attach to settlements or recoveries had by reason of the workmen's compensation act.

PENNSYLVANIA

Bills Introduced.—S. 134 proposes to establish a state cancer institute and clinic. S. 129 proposes to create a board of naturopathic examiners and to regulate the practice of naturopathy. All applicants for a license to practice naturopathy, however, prior to appearing before the naturopathic

board for examination would be required to pass an examination given by the state board of medical education and licensure, in anatomy, physiology, pathology, bacteriology, hygiene, biochemistry, symptomatology and diagnosis. H. 331 proposes to regulate the practice of barbering. H. 360 proposes that, in court hearings to determine the right of one committed to any mental hospital to a discharge therefrom, the court may in its discretion admit in evidence the sworn statement of hospital physicians.

SOUTH DAKOTA

Society News.—At a meeting of the Aberdeen District Medical Society, Aberdeen, January 20, addresses were made by Drs. James B. Carey, Minneapolis, on "Classification and Management of the Anemias"; Edward P. Cathcart, Rochester, Minn., "Value of Urography in General Diagnosis," and Geoffrey I. W. Cottam, St. Paul, "Intestinal Obstruction."

Bills Introduced.—S. 64 and H. 99 propose to provide for the collection, recording and preservation of vital statistics under the supervision of the state board of health. S. 96 proposes to regulate the practice of chiropody, defined as "the local medical, mechanical or minor surgical treatment of the human foot and massage in connection therewith excluding, however, the amputation of a toe or toes, the removal of any bone, or the use of anesthetics other than local."

TEXAS

Bills Introduced.—S. 78 proposes to define "poison," within the meaning of the pharmacy practice act, to mean "any drug, chemical or preparation which, according to the United States Pharmacopeia, National Formulary or materia medica, is liable to be destructive to human life in quantities of sixty grains or less." H. 334, to amend the nursing practice act, proposes that the board of nurse examiners consist of six members, two of whom serve for six years, two for four years and two for two years. H. 251 proposes to levy an annual occupational tax of $50 on itinerant physicians.

Annual Clinical Conference at Dallas.—The third annual spring clinical conference of the Dallas Southern Clinical Society will be held, March 30-April 3, in Dallas, with headquarters at the Baker Hotel. The lectures included in the graduate courses are grouped in fourteen divisions representing the major specialties in medicine. Beginning at 2 p. m. daily from Monday through Thursday, a group of organized clinics will be held in each of six Dallas hospitals. The annual clinic dinner and alumni gathering will be held Wednesday evening. A symposium on "Foreign Bodies of the Food and Air Passages" will be held Tuesday, and on Thursday one on hypertension. The round table luncheons will be held in four groups: surgery, pediatrics, medicine and eye, ear, nose and throat. A program of motion pictures, some with sound, has been prepared. Scientific exhibits will depict, among other subjects, tularemia, undulant fever, Rocky Mountain spotted fever, psittacosis, endemic typhus fever and rabies. Technical exhibits are also planned. Drs. John R. Caulk, St. Louis, James H. Means, Boston, Willis C. Campbell, Memphis, Tenn., Conrad Berens, Jr., New York, and John Osborn Polak, Brooklyn, are included in the list of guests, some of whom were noted in THE JOURNAL, January 24, p. 279.

UTAH

Bill Introduced.—H. 56 proposes, in effect, to create a board of naturopathic examiners.

VERMONT

Bills Introduced.—H. 116 proposes to regulate the practice of naturopathy, which is defined as "a system of treatment for the human body by the use of psychological, mechanical and material health sciences to aid in purifying, cleansing and normalizing human tissues for the preservation or restoration of health, according to the fundamental principles of anatomy, physiology and applied psychology, as may be required without medicine or surgery." H. 155, to amend the optometry practice act, proposes (1) to repeal that section forbidding the practice of optometry from door to door or from town to town, (2) to define "gross unethical or unprofessional conduct," which is sufficient cause for the revocation of a license, to mean (1) advertising which has tendency to deceive the public (2) practicing under an assumed name (3) lending of certificate or license to any other person (4) the employment of unlicensed persons in the performance of any services for which an optometrists' registration is required by law.

GENERAL

Reunion of Ex-Interns.—Former interns of the Old Cincinnati Hospital will assemble from all parts of the country at the Cincinnati Club, Cincinnati, February 21. A large composite picture has been made of the present living interns, of whom there are about 200, and will be presented to each man attending the dinner. The secretary of the Ex-Interns' Society is Dr. Samuel Zielonka, Vindonissa Building, Cincinnati.

Nine Per Cent of Drugs Detained.—According to Mr. W. R. Wharton, chief of the eastern district, Federal Food and Drugs Administration, U. S. Department of Agriculture, 9 per cent of the total drugs examined during the year ended July 31, 1930, were detained as violating the federal Food and Drugs Act. The district examined 2,763,620 pounds of cod liver oil, of which 444,389 gallons was detained. More than 250 varieties of crude drugs offered for importation were covered in 3,593 shipments, which totaled 61 million pounds, exclusive of cod liver oil. Mr. Wharton says that importers of crude drugs can assist in the correction of conditions leading to the necessity for detentions of illegal products at American ports by specifying only lawful merchandise. In order to bring about fundamental correction of abuses in the import trade in crude drugs, the administration seeks the support and cooperation of importers in enforcing the Food and Drugs Act. The following examples indicate the reason the drugs were detained: (1) aconite, moldy; (2) aloes, excessive moisture; (3) cinchona, low alkaloids; (4) cod liver oil, adulterated with other fish oils, high free fatty acids; (5) ergot, low potency and excessive foreign matter, and (6) ipecac, low alkaloids.

Medical Bills in Congress.—Minority views, in opposition to the enactment of S. 255, the Jones maternity and infancy and rural hygiene bill, have been filed by Representative Merritt, Connecticut, and Representative Beck, Pennsylvania. S. 2817 has passed the Senate, amending an act entitled "An Act to recognize the high public service rendered by Major Walter Reed and those associated with him in the discovery of the cause and means of transmission of yellow fever," by including Roger P. Ames among those honored by the act. S. 5984 has passed the Senate, authorizing the construction, for the District of Columbia, of a sanatorium for adult tuberculous patients. H. R. 3394 has passed the Senate, providing for the deportation of aliens convicted and sentenced for violation of any law regulating traffic in narcotics. H. R. 6997 has passed the Senate, providing free hospitalization for certain persons who served in the Quartermasters Corps or under the jurisdiction of the Quartermaster General during the war with Spain, the Philippine Insurrection or the China relief expedition. H. R. 12169 has passed the House, proposing to define what constitutes the practice of naturopathy in the District of Columbia. H. R. 16162 has been reported to the House, without amendment, proposing to extend hospital and home facilities to veterans of the Confederate army and navy (Report 2598). S. Res. 437, introduced by Senator Broussard, Louisiana, proposes to direct the Secretary of Commerce to furnish the Senate with copies of all cooperative or other agreements between the Bureau of Mines and any manufacturer of wood alcohol. S. 5949, introduced by Senator Bingham, Connecticut, proposes to authorize the enlargement of the veterans' hospital in Connecticut. S. 6090, introduced by Senator McKellar, Tennessee, and H. R. 17034, introduced by Representative Britten, Illinois, propose to regulate the interstate transportation of methanol. S. 6097, introduced by Senator Wheeler, Montana, proposes to construct and equip a hospital on Crow Indian Reservation. S. 6125, introduced by Senator Smoot, Utah, proposes to authorize an appropriation of $20,877,000 to provide additional hospital and domiciliary facilities for veterans. H. R. 16915, introduced by Representative Leavitt, Montana, proposes to authorize the purchase by the federal government of the state laboratory at Hamilton, Mont., constructed for the prevention, eradication and cure of spotted fever. H. R. 16946, introduced by Representative Cable, Ohio, proposes the erection of a veterans' hospital in northwestern Ohio. H. R. 16982, introduced by Representative Rogers, Massachusetts, proposes to authorize an appropriation of $12,500,000 to provide additional hospital, domiciliary and outpatient dispensary facilities for veterans. This bill has been favorably reported. H. R. 17009, introduced by Representative Luce, Massachusetts, proposes to create a commission to study the hospitalization of veterans. H. R. 17031, introduced by Representative Fulmer, South Carolina, proposes to provide for federal cooperation with the several states in the care, treatment, education, vocational guidance and placement, and physical rehabilitation of crippled children.

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Foreign Letters

LONDON

(From Our Regular Correspondent)

Jan. 24, 1931.

Pregnancy and Tuberculosis

At a joint meeting of the Tuberculosis Association and the obstetric section of the Royal Society of Medicine an important discussion took place on the subject of pregnancy and tuberculosis. Dr. Geoffrey Marshall, tuberculosis officer of Guy's Hospital, said that academically every woman in this country could be said to be tuberculous, as every adult harbored bacilli, more or less. But a "tuberculous woman" meant one whose health had been seriously impaired by disease of the lungs. Should pregnancy be allowed to continue? Older writers, from Hippocrates to Sydenham, regarded the pregnancy as beneficial to the lung disease, but more recent ones, including Osler, held that the pregnancy was a disaster. The pendulum was now swinging to a neutral position, but most physicians dreaded pregnancy in a tuberculous woman. If it had passed the fourth month, artificial termination was rarely advisable; many would not sanction it later than the end of the second month. But in several cases it had been stopped in the fourth month without increasing the pulmonary trouble. In early pregnancy the guide was not so much the extent of the disease as its history. When the disease had only recently become active or had recently become quiescent, nonintervention would be difficult to justify. When the disease was chronic, pregnancy was seldom disastrous. Moreover, a patient in whom the disease had been arrested stood an anesthetic and the operation well but pregnancy badly. On the other hand, in the advanced or chronic case anesthetics were not so well borne, nor were operations, while pregnancy did less harm.

In the medical management, the important point was that pregnancy was an additional reason for inducing pneumothorax, if the case was suitable; i. e., the disease confined to one lung. In the puerperium the question of nursing arose. There was no hard-and-fast rule. If pregnancy and parturition had been gone through without disturbance, no sudden change was likely to occur in the puerperium. If weight was not falling and there was no pyrexia, nursing might in most cases be allowed.

The obstetrician's standpoint was put by Mr. Aleck Bourne of St. Mary's Hospital. He first referred to the conflict of opinion as to the effect of pregnancy on tuberculosis and the treatment. This he attributed to the fact that no one observer had sufficient experience of both aspects of the question and therefore views were based on inadequate material. His own view, formed after twelve years' work in an infirmary, was that tuberculous women should be informed that pregnancy was of no consequence when the lesion was healed and inactive, but unfortunate when the disease was active, and disastrous when advanced. Abortion in general had no place in the treatment. In the puerperium the essential thing was to disallow lactation and, if possible, to remove the child from the danger of infection. For phthisis, as for other diseases, the proper course was to treat the disease and leave the pregnancy alone.

Another obstetrician, Mr. L. C. Rivett of Queen Charlotte's Hospital, said that in active tuberculosis abortion should be induced for the sake of both mother and child. Any woman who had active tuberculosis should receive sanatorium treatment during the whole of her pregnancy and for six months afterward. The tuberculosis had little effect on the pregnancy; there was no particular tendency to abortion. The child was usually on the small side, and there was no reason to interfere with the labor, especially as anesthetics were inadvisable. There was no tendency to postpartum hemorrhage, sepsis or subinvolution. He advocated no nursing.

In the discussion, the same differences of opinion between the physicians and the obstetricians were revealed. Thus, Dr. Jane Walker was surprised at the opposition to nursing. Her own view was that it was an advantage to both mother and child that nursing be allowed. On the other hand, there was general agreement as to the artificial termination of pregnancy only in the early stages and as to the value of the pneumothorax treatment. The hope was expressed that the ministry of health would, as the result of the discussion, make provision for the treatment of pregnant tuberculous women. But Dr. Jane Walker pointed out that, after consulting with Dame Louise McIlroy, professor of obstetrics at the London School of Medicine for Women, and herself, the London county council had under consideration a scheme for tuberculous women to be sent to a sanatorium for confinement and the ensuing six months. But it was found that the women objected to going.

Influenza in England

Influenza is prevalent in England, as it often is at this time of the year and as it is at present in other parts of the world, but its virulence is low. For the week ended January 17 there were registered in the 107 county boroughs and large cities 146 deaths from influenza, of which 27 were in London. For the previous week the numbers were 101 and 16. An influenza wave usually lasts about six weeks. The disease has reached epidemic prevalence at Aldershot, where a large number of troops are always stationed, but the majority of the cases are mild. The usual precautions for an epidemic have been taken. Soldiers have been advised to avoid crowded places and to gargle night and morning with a mixture of potassium permanganate and sodium chloride. Meetings at the military welfare centers for women and children have been canceled.

Is Cancer Stimulated by Radium?

The Medical Research Council has just issued a report summarizing the records received from the research centers in London, Birmingham, Cardiff, Aberdeen and Dublin, which have been entrusted with stocks of radium salt by the government in order to investigate its curative powers. In the years during which roentgen rays and radium have been used as therapeutic agents two questions have from time to time been asked and have evoked discordant replies. One is, Do some people exhibit idiosyncrasies to irradiation? The other is, Do the rays occasionally stimulate malignant growths to increased activity? On the first question the report states that every now and then a patient of unusual sensitiveness does appear. On the second question opinions differ widely. There are several possible modes of stimulation of malignant cells. On the general principle, established for so many drugs, that large doses and small doses may act in opposite ways, it might be thought that living cells can be stimulated by very small doses of irradiation. In the vegetable world both positive and negative results have been reported, and some observations suggest that this may hold for malignant cells, but they are too few for definite proof. Another way in which radiation may possibly stimulate malignant growths is by giving a considerable dose to a growth already infected with bacteria. Here a totally different series of events must be visualized, for the reaction of a malignant growth to irradiation is partly caused by the direct action on the cells themselves and partly by indirect action on the normal tissues of the host. In the case of infected growths, it is perhaps rational not to expect the normal series of reactions, and in extreme cases it is possible that malignant growths do increase at a more rapid rate than they otherwise would, in spite of the damage the malignant cells themselves may have suffered from the direct radiation. The report draws attention to a case at the Middlesex Hospital in which progress of the disease seemed to be accelerated by the treatment. Whether this resulted from the opening up of fresh channels by the needles that were inserted or from the action of the

rays on the cells or surrounding tissue cannot be said. Which of these alternatives is correct is clearly a question of fundamental importance in radium therapy.

Definite lines of treatment by radium for different parts of the body have now been approved as effective. Particularly good results have been obtained from the Paris and Stockholm methods, which differ only in small details. Great Britain has been late in obtaining such adequate supplies of radium as have been available on the continent for several years. But it has already won respect by its contributions to radium therapy, and it may yet be that a "British method" for some of the more resistant regions of the body may receive approval. It is already clear that some persons are especially sensitive to radium and that their sensitiveness has to be carefully estimated before conducting the treatment. In some cases, again, the rays seem to stimulate rather than to destroy the malignant growth.

The Control of Opium Smoking in the Far East

The report of the commission of inquiry into the control of opium smoking in the Far East came before the council of the League of Nations at Geneva. The conclusions of the commission were that all measures aiming at gradual suppression should be taken concurrently in each country; that it was necessary to secure the gradual limitation of poppy cultivation; that the price of government opium should be reduced so as to make smuggling unprofitable; that government opium should be distributed through only state controlled shops; that smoking should be prohibited to any one under the age of 21 years; that the consumption of dross being more harmful than that of opium, its strict control must also be established, and that governments that derive revenue from the sale of opium must readjust their budgets. It was decided to accept the invitation of the Siamese government to hold a conference on opium smoking in Bangkok in November.

The Relation of Physicians to the Clergy

The question of faith healing and the relations of the clergy with physicians in the treatment of the sick have become prominent subjects in the discussions of the Church of England, partly as the result of the considerable support given to so-called Christian science, which has been introduced into this country from America. At the convocation of Canterbury, just concluded, there was a discussion regarding the ministry to the sick, with especial reference to the use of unction and the laying on of hands. Rev. T. F. Monahan said that much so-called faith healing was due to natural causes, and the faith that was necessary was subjective rather than objective. That was why they saw so many cures from so-called Christian science. It should be emphasized that what they were doing in unction was something for the soul, and a secondary consequence might be the healing of the body. The Bishop of Woolwich said that for the first time in history all the bishops of the Anglican communion had approved of the principle of spiritual healing, and it seemed fitting that a special form be adopted for use. Physicians were realizing more and more the necessity of spiritual agency in their work. They had no antagonism to the clergy but were perfectly willing to cooperate, and it was that cooperation the church wanted to bring about. The church had neglected spiritual healing too long, and in consequence there had been a growth of "Christian science."

Presentation to Sir D'Arcy Power

Sir D'Arcy Power, who has just returned from lecturing in America, has been presented with a volume of selected writings from his own work in commemoration of his seventy-fifth birthday. The presentation was made at Sir D'Arcy's hospital, St. Bartholomew's, by Lord Moynihan, who described him as the most eminent medical historian of our day. The *British Journal of Surgery* had greatly benefited by his unrivaled knowledge of surgical history. Of the sixteen articles in the commemorative volume, all but two are on historical or biographic subjects. The two surgical articles are on the palliative treatment of aneurysm and on cancer of the tongue. Sir D'Arcy makes the important point that there is no record of the latter disease before 1635 and that its increase has been parallel with the increased use of tobacco.

PARIS

(From Our Regular Correspondent)

Jan. 7, 1931.

Hypotensive Properties of Sodium Oleate

In an address delivered before the Société des médecins des hôpitaux de Paris, Dr. Maurice Renaud called attention to the unexpected effect of a marked reduction in blood pressure following the intravenous injection of a solution of sodium oleate. The mechanism of its action appears to be quite different from that of substances that act on the vasomotor system. From researches made thus far, it is evident that the intravenous injection of sodium oleate does not cause disorders in the organism that need be feared. It acts on the arterial pressure, causing a steady and permanent reduction, after the lapse of several hours, which amounts to from 6 to 10 degrees on the Pachon sphygmomanometer, the minimum pressure declining almost parallel with the maximum pressure, while the oscillometric relation increases. The action appears to be more effective, the higher the pressure is. In persons with high blood pressure, injections of sodium oleate cause regularly a marked lowering of the arterial hypertension and appear to be by far the most effective means for diminishing the dangers. Finally, while the physiologic mechanism remains to be studied, what is known of the properties of soaps leads to the belief that the injection of sodium oleate causes only purely physical modifications in the conditions of the circulation. The study of the problem ought to elucidate the pathogenesis of hypertension.

The Sanitary Control of Aviation

Discussions on the sanitary control of aerial navigation resulted in the promulgation of several resolutions by the permanent committee of the International Bureau of Public Hygiene, at its recent meeting in Paris. Several countries have regulations on this subject, some of which are rigorous. The committee expressed the view that it would be well to present a typical set of regulations that might serve as a model for all countries, in order that uniformity might characterize their administration. A subcommittee was appointed and authorized to appeal for aid to the Commission internationale de la navigation aérienne. The subcommittee concluded that, under present conditions, which are subject to change from day to day, it would be premature to try to establish a set of regulations or even general principles, and that the regulations adopted, such as they are, will necessarily, at the start, be subject to more or less complete revisions. The committee emphasized again the danger of patterning regulations of sanitary defense, as affecting aerial traffic, after the regulations governing maritime navigation. The point was stressed that the risk of dissemination of disease by airships is relatively slight, by reason of the class of passengers and the conditions existing in the landing ports. It decided, therefore, that the International Bureau of Public Hygiene, in advising the governments and the organizations interested of the conclusions reached with reference to the question of international sanitary regulation of aerial navigation, should call their attention to the principles adopted by the committee at its session last May; that is to say, (*a*) established landing fields; (*b*) medical examination on arrival; (*c*) sanitary "surveillance" of persons coming from infected regions; (*d*) in special and exceptional cases rendering such measures necessary, strict isolation during the port calls. To these it would be well to add two others:

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1. The buildings, the occupants, and, in general, the whole area of the airports, should be maintained in an absolutely sanitary condition, and the precautions, in the yellow fever regions, should include mosquito proofing and measures for the destruction of mosquitoes. 2. Wherever the need is felt, special arrangements should be made for the creation of a system of communication between the physicians of the airports located on the same route, concerning infectious diseases. It should be emphasized that these recommendations do not include the institution of a system of clearance papers such as is employed in maritime navigation; nor do they provide for the "observation" of passengers. In this connection, in recent research, Pettit, Stefanopoulo and Roubaud showed that the Algerian monkey is highly susceptible to yellow fever. They ascertained that the species of *Stegomyia* in regions exempt from yellow fever are just as capable of transmitting the virus as are the species of *Stegomyia* found in endemic regions. Particularly, the species of *Stegomyia* found in northern Africa is capable of being the vector of the virus. These facts are important for hygienists to know at this time, when airships may transport a yellow fever patient who is still infectious to a country as yet exempt.

International Exchange of Professors

At the request of Mr. Briand, the minister of foreign affairs, who desires to promote the international exchange of university professors, the minister of public instruction requested the council of the Faculté de Paris to designate an eminent professor who would be invited to deliver a number of lectures at the University of Paris. Accordingly, at the request of the Faculté de Paris, Professor Jadassohn of Germany came to Paris and delivered three lectures on dermatosyphilography. The topics were: (1) hematogenic toxidermias; (2) relations between the allergy, the histologic structure of dermatoses and the number of micro-organisms, and (3) discussion of antisyphilitic treatment. Professor Jadassohn discussed, from his wide experience, the present state of knowledge of these three great questions, pointing out what had been acquired and what was still hypothetical; what remained unknown, and what lines of research should be pursued. The lectures were delivered before practically all the dermatologists of Paris and many other physicians and students, both French and foreign.

Report of the Sanitary Inspection Service of Paris

Mr. Roéland, member of the municipal council of Paris, has recently published his report on the veterinary sanitary inspection service of the city of Paris and of the department of the Seine. It will be noted that rabies has almost entirely disappeared, although the number of dogs has increased. From 166,917 dogs in Paris in 1924, the number had risen in 1929 to 230,674. In spite of this marked increase, only ten cases of rabies in animals were observed. There were no cases of rabies in man. The report of Mr. Roéland brought out the fact that the consumption of meat has diminished; likewise, less poultry and game were consumed. On the other hand, the Parisians seem to be eating more fish, mollusks and crustacea. Paris received 179,661,009 eggs. All these food products were subjected to strict sanitary control, the details of which Mr. Roéland describes. The report gives a detailed account of the sanitary control of milk, to which great importance is attached, in spite of the opinion of a government official to the contrary. The control of milk is effected through the vigilant supervision by the services of the prefecture of police, which gives this matter particular attention.

Tuberculosis in the French Colonies

From an inquiry published by Dr. Abatucci, it appears that the diffusion of tuberculosis in the French colonies follows the same laws as in Europe. It is rare in regions where the natives live in scattered dwellings, with rare contacts with white persons. But, following such contact, the disease, evolving in a virgin soil, develops rapidly. In Africa that fact is evident. Tuberculosis is common on the coast and diminishes rapidly in frequency as one penetrates to the interior. When the black troops were brought to France, during the war, the Senegal contingents, as a result of careful examinations on their arrival in the camps at Fréjus and at Saint Raphael, were found to present only from 4 to 5 per cent of positive skin reaction. Tuberculous morbidity in them increased rapidly as the war progressed and at the close of 1919 amounted to 23 per thousand. It was only 4 per thousand in 1923 and 1924, on their return to Africa. Tuberculosis is widely prevalent in the Indies, on Réunion Island, in Guiana, and especially in the colony of Saint Pierre and Miquelon, where its development is favored by the spread of alcoholism. In New Caledonia, a French penal colony, former convicts who have become colonists have spread the disease among the natives, who were previously immune. In Madagascar, tuberculosis is frequent among the Hovas of the high plateau regions, but more rare among the inhabitants along the coast. In the Antilles, the blacks, during slavery times, living *en famille* with the planters, were well fed and well taken care of and seldom developed tuberculosis. Having gained their liberty, they lived in promiscuity in unhygienic dwellings, so that the skin reaction to tuberculin is now around 40 per cent. In Indo-China, tuberculosis is rare in Laos, which is isolated owing to its mountain and forest frontiers; but it is increasing in all other parts of the colony, which is due to the constant mingling of the races in the exchange of commodities. Its frequency is, as in Europe, in direct relation to the density of the population. In Cochin China, with a dense population, the proportion of positive skin reactions reaches 67 per cent, as in Europe. It is in this province that the government has undertaken an antituberculosis crusade on the same basis as in France, with the aid of the services of the Pasteur Institute at Saigon. The organization comprises dispensaries, open-air schools for suspected children, sanatoriums and, in the hospitals, special wards for the treatment of advanced cases. At the same time a publicity campaign is carried on in the native language, by means of leaflets and articles in the press, which the teachers are requested to call attention to in the public schools, and by the aid of lectures and the projection of films. Vaccination with the BCG vaccine is applied to the new-born in Indo-China and in French West Africa, to adults with a negative skin reaction in Madagascar and in French West Africa, and to men beginning their military service in France and in the colonies. The laboratories of Saigon, Tananarive and Dakar receive from the Pasteur Institute in Paris the required strains of organisms with which to prepare the vaccine on the ground, under the best possible conditions.

RIO DE JANEIRO

(From Our Regular Correspondent)

Jan. 15, 1931.

The Third Normal Heart Sound

Dr. J. Barbosa Corrêa, assistant physician to the Clinic of the Faculty of Medicine of São Paulo, recently lectured on the diagnosis of cardiac murmurs. He described the characteristics of the third heart sound, which, although described in 1907 by means of graphs by Einthoven and clinically by Gibson, is still unknown to some clinicians. The speaker was able to discover the third cardiac sound while auscultating the hearts of normal students aged from 18 to 21 years. The phenomenon, which appears at the beginning of diastole, is characterized by a brief weak sound with greatest intensity at the moment of its cessation. The strokes of the third heart sound may be represented thus: TUM-ta-tum, TUM-TA-tum. In some cases the intensity of the sound increases if during the examination the patient is placed in lateral decubitus on the left side, after having taken moderate exercise. In some cases the sound is so characteristic

that this procedure is unnecessary. The site of the greatest intensity of the sound is the apex. Owing to the fact that the sound is weak, it cannot be heard in other cardiac areas. The mechanism by which the third heart sound is produced has been explained by some authors as being due to the sudden distention of the ventricular wall caused by the first flow of blood while the latter enters the ventricle at the beginning of diastole. According to other authors, the third sound is caused by vibrations of the auriculoventricular valves when they are opened by the force of the blood while the latter goes into the ventricles. The differentiation of the normal sound from the pathologic murmurs that arise during the prediastolic stage is important, since both the normal prediastolic sound and some accidental murmurs that are characteristic of mitral stenosis are heard at the apex. That is why some cardiologists have admitted the possibility that a diastolic murmur may simulate the second heart sound. Sometimes the diastolic murmur is short and the diagnosis of its presence is rather difficult when no other symptoms of aortic insufficiency are present. In doubtful cases of this nature, in order to make a differentiation of the sound as being either normal or pathologic, the following considerations should be kept in mind: According to Lewis's observations, the presence of a prediastolic murmur independent of a presystolic murmur in patients with mitral stenosis points out that there exists a delay in the conduction. Josue has demonstrated that, in the auscultation at the jugular vein, a weak sound preceding the first heart sound is heard at the moment of the contraction of the auricle, which sound gives the impression of a presystolic cantering rhythm, whereas, if there is a delay in the conduction, the sound that corresponds to the systole will arise just after the second heart sound. In auscultation over the jugular vein, the prediastolic murmur caused by mitral stenosis is heard in association with a rhythm similar to the prediastolic gallop, while the normal prediastolic sound, that is, the third heart sound, is heard in association with a rhythm which is similar to the presystolic gallop. Once the third heart sound is known it cannot be mistaken for pathologic bruits, which have a different site of greatest intensity and which give a different acoustic impression. There are, however, some bruits, such as is the case with the prediastolic murmur, which give the same acoustic impression that the normal heart sound gives. The differentiation is made because the third normal heart sound is observed in healthy young people without symptoms of cardiac diseases. When the differentiation between the conditions mentioned is difficult, electrocardiography, and sometimes sphygmomanometry, is of value in solving the diagnostic problem.

Tracheobronchial and Tracheo-Esophageal Fistulas

Dr. Mangabeira Albernaz recently published an article on the relations between the respiratory passages and the digestive tract. He points out the most frequent localizations of tracheobronchial and tracheo-esophageal fistulas and the etiologic factors that are involved in the development of the fistulas. Cancer is the most common origin, coming next in importance to congenital fistulas, of which the author has found *222* in his review of the literature. Syphilis is rarely the origin of this type of fistula. Out of 639 cases reviewed in the literature, only 20 cases were syphilitic. Etiologic factors of less importance in the formation of this type of fistulas are tuberculosis, actinomycosis, internal or external trauma and decubitus of the patient, or some other similar cause. One patient developed a fistula after having being wounded by a gun. The bullet went in 1 cm. to the right of the median line and 2 cm. above the clavi-sternal articulation and it was lodged at the opposite side in the anterior border of the trapezium. Great care was taken to avoid the development of a deglutition pneumonia and also of mediastinitis as possible complications of the wound. A prophylactic mediastinotomy according to Maschik's method was made. Notwithstanding these precautions, the patient died in a violent hemorrhage due to the rupture of the left vertebral artery, which was injured by a fragment of the seventh cervical vertebra. The fracture of the vertebra had not been discovered. The author considers this case rare.

Trachoma

Drs. Fabio Belfort and Fleury da Silveira recently delivered lectures before the Sociedade de Medicina e Cirurgia of São Paulo on their studies of trachoma. The speakers concluded that trachoma is a contagious disease. The bacteria of trachoma are not detectable by the methods available for the visualization of bacteria. The statement previously made that trachoma is a condition of chronic conjunctivitis which results after one or several attacks of acute conjunctivitis, either insufficiently treated or not treated at all during the acute inflammatory stage, is inexact. Acute conjunctivitis of a chronic type is caused by *Hemophilus* of Koch-Weeks and by *Hemophilus* of Morax-Axenfeld. Trachoma may be treated by the nasal route. Trachoma may have a subacute beginning, it is not associated with ocular suppuration and it is not in all cases a chronic disease. Adults are not immune to trachoma and there is not less resistance to the disease in adults than in children. Care of oneself and the observance of hygienic precepts prevent contagion. The patient studied by the authors was 55 years old.

BERLIN

(From Our Regular Correspondent)

Jan. 19, 1931.

Germany's Physicians

According to the 1931 edition of the Reichs-Medizinal-Kalender für Deutschland, Part II, Medical Handbook and List of Physicians, comprising statements in regard to all physicians of the German *reich*, a list of all hospitals and sanatoriums, a survey of the medical organizations of Germany, and similar material, there were about 50,000 physicians in the *reich*, exclusive of the Saar region, as of October, 1930, and, in addition, 396 physicians in the Saar region and in the Free City of Danzig. In recent years, the number of physicians has increased much more slowly than during the first years following the inflation period. Women physicians have increased more rapidly than the total number of physicians. Whereas in 1909 there were only 82 women physicians, or 0.27 per cent of the total number of physicians, in 1930 there were 2,807 women physicians, or 5.95 per cent of the total number. The contingent of women among the new graduates has increased so rapidly that for each ten men physicians there are more than two women physicians. The marked decrease in the number of newly licensed physicians explains the noticeable lack of assistants. Over against the small number of newly licensed physicians stood a total of about 1,800 deceased physicians in the years 1929 and 1930, so that the past two years has not added materially to the excess of physicians, and the apparent increase in the number of physicians in these two years is doubtless due to the fact that recent statistics are more accurate. This development, however, does not promise any lessening of the high percentage of physicians, for the number of students who have passed the preliminary tests and the number of medical students do not indicate any decrease in the number of physicians for the immediate future. The increase in the number of medical students will soon effect an increase in the number of newly licensed physicians. On the other hand, when the youths born during the war years enter the medical schools—especially if the present economic stress continues—there will doubtless be a reduction in the number of medical students. Furthermore, the gradually increasing medical tasks that will result from the proportionate increase in the representation of the higher age groups will in a few decades furnish increased employment for the medical profession, so that the economic crisis among the medical profession due to the excess

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of physicians will then presumably yield to better economic conditions. In the meantime, until it becomes more evident just how things will be going, an endeavor must be made to prevent a too rapid growth of the medical profession, in order that the present crisis may not rest too heavily on the profession.

Of the 49,974 physicians in the German *reich*, there were 2,794 physicians who were directors of institutions, and 7,041 physicians who occupied other posts in institutions, exclusive of the physicians serving in roentgen institutes, laboratories, pathologic institutes or policlinics. In addition to the aforementioned institutional physicians, there were 37,246 free practitioners and 2,893 physicians who have retired from active practice.

Of the total number, exclusive of the 2,893 nonpracticing physicians, which constitute 5.8 per cent of the total, 32,629 are general practitioners, which includes the specialists in physicodietetic therapy, roentgen diagnosis and therapy, medicomechanics and diseases of the mouth and the jaws, and 14,452, or 28.9 of the total, include the other specialties. Of this number, 24.4 per cent are internists; 16.7 per cent are surgeons; 11 per cent are gynecologists; 8.2 per cent are pediatricians; 6.4 per cent are psychiatrists or neurologists; 9.1 per cent are oculists or ophthalmologists; 10.2 per cent are laryngologists, rhinologists and otologists, and 14 per cent are dermatologists and urologists.

The percentage of physicians in a given area is naturally greatly affected by the large cities and the universities. There is an especially high percentage of women physicians in the large cities.

Eruptions Induced by the New Style of Hats

Prof. W. Frei, writing in the *Deutsche medizinische Wochenschrift*, calls attention to skin eruptions on the head, induced by the present style of hat worn by women. He has observed four such cases recently, so that he is convinced that the eruption must be of common occurrence. The disorder has nothing to do with hair tonics and hair dyes, which are the more frequent cause of eruptions on the head. It may, however, have some analogy to the eczemas observed, a few years ago, on the heads of men, which were caused by hat sweat-bands made of artificial leather, employed to some extent during the inflation period; for the headdress of women is apparently the inducing cause. The four women who presented the irritative and stubborn eruptions had all worn the tight-fitting hats that are now so much in vogue, and the eczemas corresponded precisely to the areas of the scalp against which the hats rubbed. While the localization of the eruptions pointed plainly to the hats as the inciting cause, this assumption was proved by means of irritation tests that Professor Frei carried out with the black lining and the black felt of the hats on the backs of the wearers. Other women, to be sure, did not react to these irritation tests; hence, it is evident that the disorder is based on a peculiar hypersensitiveness of the women affected. This hypersensitiveness is not directed against the fiber material of the hats but against the chemical substances contained in such material. That black dyes are concerned is possibly due to the fact that the dark color tones are dominant in the present style of hats. Likewise, it is doubtless due to the present style that the disorder is at present so common; for the tight-fitting hats such as are now worn bring the dangerous substances in so much closer contact with the scalp than was formerly the case. As the eruptions are persistent and highly irritative, it is to be hoped that a change in the style will soon put an end to the eczemas.

Institute for the History of Medicine

Prof. Dr. Paul Diepgen, the medical historian, who was called from Freiburg to Berlin, about a year ago, spoke recently, before the Berliner Gesellschaft für Geschichte der Naturwissenschaften, Medizin und Technik, on the aims and tasks of the new institute for the history of medicine and the natural sciences, the erection, equipment and direction of which he took over on assuming his present post.

The institute has a suite of twenty-five rooms in a former bank building. The chief equipment consists naturally of the library treasures, which are, in part, so valuable that they are preserved in a special depository left by the bank. At present, the library comprises 10,000 volumes; in addition, there is a special pharmaceutic collection of 2,000 pieces. A larger seminar room, which is well adapted for lectures, serves for the present as a reading room for the students. Then there are work rooms for the director, four assistants and other auxiliary personnel. The reading room, as well as the whole institute, will be open until a late hour. It is planned to organize the service so that the institute, by means of its comprehensive card filing system, will furnish information at any time on the existing literature in this particular specialty; in other words, a scientific source of information on a large scale. The principal task of the institute will be to instruct the students as to the importance of the problems of the history of medicine for the understanding of the medicine of the present day and to guide them in the making of independent researches in old documents, which has already led to historically important discoveries. At present, the institute is engaged in collecting material for the publication of an atlas of the history of medicine and of studies on Arabian medicine, in which latter task the orientalists of the university will cooperate.

Death of Professor Siemerling

Geheimer Medizinalrat Prof. Dr. Ernst Siemerling, one of the best known neurologists and psychiatrists, died, after a long period of suffering, in the Charité Hospital, January 6, aged 73. This was the hospital in which he served, many years previously, as assistant under the nerve specialist Westphal. In 1893, after he had been appointed, a year previously, professor extraordinarius, he received a call to the University of Tübingen as ordinarius for psychiatry, and in 1900 he accepted an invitation to the University of Kiel, in the same capacity.

His scientific importance was far above the average. Importance attaches to his research on the delicate structure of the brain and the spinal cord; to his contributions to medicolegal psychiatry; to mental disease and crime, and to the etiology of multiple sclerosis. His investigations on the incidence of softening of the brain among the female population of Berlin attracted considerable attention. After his retirement, Geheimrat Siemerling led a quiet life in Berlin.

Marriages

GEORGE BRITAIN WALTON, Durham, N. C., to Miss Liza Witherspoon of Greensboro, in Winston-Salem, Dec. 12, 1930.

ROBERT C. ANDERSON, Johnson City, Tenn., to Miss Thane Hendrix of Petersburg, Va., in Bristol, Tenn., Nov. 8, 1930.

ELLIS COLUMBUS MOORE, Carthage, Miss., to Miss Catherine Preston Finney of Lexington, Va., in December, 1930.

JOHN W. GOOD, Cedartown, Ga., to Miss Lois Bedwell of Cedar Bluff, Ala., in Center, Ala., Dec. 5, 1930.

BLAKE WALDEN MEADOR to Miss Ethel Marchant Hale, both of Richmond, Va., in December, 1930.

JOHN JAMES BURKE, Lake Linden, Mich., to Miss Marie Rahoi of Iron Mountain, Nov. 11, 1930.

CLYDE WELSH, Aberdeen, Wash., to Miss Hazel Leubart of Bismarck, N. D., in Seattle, recently.

VIVIEN P. SIEGEL, Collinsville, Ill., to Miss Jessie Little of Edwardsville, Nov. 27, 1930.

THOMAS W. KOON, Cumberland, Md., to Miss Fannie Hutson of Rawlings, Nov. 12, 1930.

THOMAS D. KECKICH, Gary, Ind., to Miss Helen Marut of Chicago, Nov. 27, 1930.

Deaths

Horace Bailey Pritchard, Syracuse, N. Y.; Syracuse University College of Medicine, 1904; member of the Medical Society of the State of New York, and the American College of Surgeons; past president of the Onondaga County Medical Society; assistant professor of clinical surgery at his alma mater; served during the World War; on the staff of the Hospital of the Good Shepherd; aged 51; died, January 10, in Fort Lauderdale, Fla., of cerebral hemorrhage.

William Carlton Smith, Salem, Ore.; University Medical College of Kansas City, 1898; past president and secretary of the Marion County Medical Society; at one time professor of anatomy, Willamette University Medical Department; served during the World War; member of the state legislature; formerly on the staff of the Salem Hospital; aged 56; died, Dec. 24, 1930, in Portland.

Thomas Francis Reilly, New York; Bellevue Hospital Medical College, New York, 1896; member of the American College of Physicians; formerly professor of medicine, Fordham University School of Medicine; on the staffs of St. Vincent's Hospital, St. Elizabeth's Hospital and the Fordham Hospital; aged 59; died, January 24, of cerebral hemorrhage and arteriosclerosis.

Albert Buist Leeds, Poland, N. Y.; University and Bellevue Hospital Medical College, New York, 1907; member of the Medical Society of the State of New York; health officer of the town of Russia and the villages of Coldbrook and Poland; served during the World War; aged 44; died, Dec. 27, 1930, in the Faxton Hospital, Utica, of acute hemorrhagic pancreatitis.

Grant C. Markle ✦ Winchester, Ind.; University of Louisville (Ky.) School of Medicine, 1892; health officer of Winchester; formerly county coroner, and secretary of the city and county board of health; on the staff of the Randolph County Hospital; aged 62; died, January 16, of injuries received when the automobile in which he was driving was struck by a train.

William Horton Pierson ✦ Brooklyn; New York Homeopathic Medical College, 1883; member of the American College of Surgeons; on the staffs of the Cumberland Street Hospital and the Prospect Heights Hospital; aged 73; died, January 29, in the Carson C. Peck Memorial Hospital, of chronic myocarditis, coronary sclerosis and chronic vascular nephritis.

William Duffield Robinson ✦ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1880; past president of the Philadelphia County Medical Society; member of the American College of Physicians and the American Climatological and Clinical Association; aged 74; died, January 24, in the Lankenau Hospital, of pneumonia.

Burtis T. Green ✦ Brookings, S. D.; Hahnemann Medical College and Hospital, Chicago, 1903; president of the Madison County Medical Society; member of the American College of Surgeons; on the staff of the Wesley Hospital; aged 64; died, January 18, in the Midway Hospital, St. Paul, of ileus, following an operation for cholelithiasis.

Francis R. Sherwood ✦ Oak Park, Ill.; Rush Medical College, Chicago, 1888; at one time professor of surgery at the University of Illinois College of Medicine; formerly on the staff of the Cook County Hospital; aged 68; died, February 7, of arteriosclerosis and carcinoma of the rectum.

Arthur Abraham Husser, Havre, Mont.; Bennett Medical College, Chicago, 1908; member of the Medical Association of Montana; served during the World War; on the staffs of the Kennedy Deaconess Hospital and the Sacred Heart Hospital; aged 45; died, January 12, of pneumonia.

Hugh Thomas Nelson, Jr. ✦ Charlottesville, Va.; University of Virginia Department of Medicine, Charlottesville, 1899; served during the World War; aged 54; died, January 15, in a sanatorium at Richmond, of hemorrhage of the femoral artery, which was pierced by a piece of glass.

John Merceir Green, Charleston, S. C.; Medical College of the State of South Carolina, Charleston, 1891; member of the South Carolina Medical Association; formerly city health officer; aged 61; died, January 14, of arteriosclerosis and angina pectoris.

William Jay Donaldson, Commerce, Mich.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1898; formerly health officer of Commerce; aged 69; died, January 22, in the City Hospital, Pontiac, of injuries received when struck by an automobile.

Charles Hill Brooke ✦ Baltimore; University of Maryland School of Medicine, Baltimore, 1891; coroner of the Southwestern district of Baltimore city; aged 64; died, January 28, in the Maryland General Hospital, of influenza and internal hemorrhage.

William M. Cole, Longview, Texas; Kentucky School of Medicine, Louisville, 1891; past president of the Gregg County Medical Society; for six years mayor of Longview; city and county health officer; aged 66; died, January 5, of cerebral hemorrhage.

Oren Howard Cobb ✦ Syracuse, N. Y.; Johns Hopkins University School of Medicine, Baltimore, 1906; member of the American Psychiatric Association; superintendent of the Syracuse State School; aged 50; died, January 23, of heart disease.

James Hennessy, Emmetsburg, Iowa; Keokuk Medical College, College of Physicians and Surgeons, 1906; member of the Iowa State Medical Society; for many years county coroner; aged 55; died, January 15, in a local hospital, of pneumonia.

Erastus Thomas Barker, Oklahoma City, Okla.; Memphis (Tenn.) Hospital Medical College, 1899; served during the World War; aged 60; died, Oct. 16, 1930, in the U. S. Veterans' Hospital, North Little Rock, of cerebral hemorrhage.

David Wise, Carthage, Mo.; St. Louis College of Physicians and Surgeons, 1892; Beaumont Hospital Medical College, St. Louis, 1893; member of the Missouri State Medical Association; aged 60; died, Dec. 9, 1930, of myocarditis.

Charles Allen Lamson, New London, N. H.; Dartmouth Medical School, Hanover, 1891; member of the New Hampshire Medical Society; served during the World War; aged 65; died, Dec. 29, 1930, of cerebral hemorrhage.

Christopher Freeman Chaffe, Rochester, N. Y.; Medical Department of the Tulane University of Louisiana, New Orleans, 1906; for twenty years county bacteriologist; aged 49; died, February 2, of gastric ulcer.

Jacob Lazar Hausman, Marysville, Kan.; Ensworth Medical College, St. Joseph, 1895; member of the Kansas Medical Society; formerly health officer; aged 69; died, February 2, in Columbus, Ohio, of leukocythemia.

Porter Morrison Wall, Monongahela, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1904; served during the Spanish-American and World wars; aged 53; died, January 16, in Pittsburgh, of chronic arthritis.

John William Humphries, Culpeper, Va.; George Washington University Medical School, Washington, D. C., 1906; member of the Medical Society of Virginia; aged 51; died, January 14, of heart disease.

Edward T. Printz, Moulton, Iowa; College of Physicians and Surgeons, Chicago, 1884; member of the Iowa State Medical Association; aged 74; died, January 12, of injuries received in an automobile accident.

Daniel T. Merritt, Nathalie, Va.; University College of Medicine, Richmond, 1896; member of the Medical Society of Virginia; member of the school board; aged 61; died, January 19, of heart disease.

James Truman Reeves, Ferriday, La.; Baltimore University School of Medicine, 1904; aged 53; died, January 14, in Natchez, Miss., of suffocation due to aortic aneurism pressing on the trachea.

John Quincey Holifield ✦ Tiptonville, Tenn.; University of Tennessee College of Medicine, Memphis, 1919; aged 36; died, January 22, in the Baptist Hospital, Memphis, of pneumonia.

William B. Lyman, Boise, Idaho; Rush Medical College, Chicago, 1880; member of the Idaho State Medical Association; aged 75; died, Dec. 6, 1930, of myocarditis and coronary sclerosis.

George John Laben, Chicago; College of Physicians and Surgeons, Chicago, 1900; formerly served in the Indian Service; aged 62; died, January 14, of carcinoma of the urinary bladder.

Archibald Keightley, New York; University of Cambridge Faculty of Medicine, Cambridge, England, 1891; aged 71; died, Nov. 18, 1930, in St. Luke's Hospital, of angina pectoris.

John W. Gue ✦ Caldwell, Idaho; Medical Department of Columbian University, Washington, D. C., 1894; aged 60; died, Dec. 26, 1930, in Boise, of arthritis and aplastic anemia.

Mark Hopkins Woolsey ✦ San Francisco; Cooper Medical College, San Francisco, 1890; aged 64; died suddenly, January 28, of coronary sclerosis and occlusion.

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Marie A. Singletary, Denver; Denver College of Medicine, 1898; Denver Homeopathic College, 1903; aged 75; died, Dec. 26, 1930, in St. Luke's Hospital, of heart disease.

Norton John Taylor, Berryton, Kan.; Penn Medical University, Philadelphia, 1865; member of the Kansas Medical Society; aged 88; died, Dec. 9, 1930, of cholecystitis.

Ernst Jentzsch, Chicago; Bennett College of Eclectic Medicine and Surgery, 1901; aged 61; died, February 3, of myocarditis, chronic nephritis and diabetes mellitus.

Martin L. Harrell, Dallas, Texas; University of Nashville Medical Department, 1888; aged 69; died, Dec. 6, 1930, of coronary thrombosis and pulmonary infarct.

John H. Moore ✠ Bridgeton, N. J.; University of Pennsylvania School of Medicine, Philadelphia, 1880; aged 75; died, January 2, in Maplewood, of heart disease.

William Holt Worrill, Thomasville, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1912; aged 48; died, January 16, of arteriosclerosis.

John R. Vinson, Callahan, Fla.; Georgia College of Eclectic Medicine and Surgery, 1910; aged 45; died, January 9, in Leavenworth, Kan., of nephritis.

Oscar H. Fleming, Crestview, Fla.; Atlanta Medical College, 1894; aged 62; died, January 21, in a hospital at Florala, Ala., of intestinal obstruction.

Edward B. Mead, Sedalia, Ohio; Starling Medical College, Columbus, 1888; formerly mayor of Sedalia; aged 70; died, January 21, of heart disease.

Samuel F. Price ✠ Jerome, Idaho; University of Michigan Medical School, Ann Arbor, 1891; aged 66; died, January 12, of streptococcic sore throat.

Frances May McAdams, Bryan, Texas; University of Texas School of Medicine, Galveston, 1913; aged 45; died, January 6, of heart disease.

Captain Hunter House, Atlanta, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1907; aged 48; died, January 15, of pneumonia.

Henry A. Sutton, Marion, Ind.; Curtis Physio-Medical Institute, Marion, 1897; aged 83; died, January 19, of acute dilatation of the heart.

Elmer J. Taylor, Georgetown, Ind.; Kentucky School of Medicine, Louisville, 1902; aged 56; died, January 9, of acute pleurisy with effusion.

William E. Ryan, French Lick, Ind.; University of Louisville (Ky.) School of Medicine, 1882; aged 69; died, January 15, of arteriosclerosis.

Adam T. Mairs, Charleston, W. Va.; College of Physicians and Surgeons, Baltimore, 1882; aged 74; died, January 10, of heart disease.

Albert F. Messner, Chicago; Hahnemann Medical College and Hospital, Chicago, 1890; aged 65; died, January 18, of chronic myocarditis.

William M. Carter, Keokee, Va. (licensed, Virginia, by exemption); aged 66; died, Oct. 16, 1930, in Calvin, of cirrhosis of the liver.

James B. Jones, Garnett, Kan. (licensed, Kansas, 1901); Civil War veteran; aged 82; died, Dec. 8, 1930, of carcinoma of the stomach.

George Nathaniel Murphey, Paducah, Ky.; Kentucky School of Medicine, 1890; aged 78; died, January 13, of heart disease.

Minerva B. Cushman, St. Cloud, Fla.; Hering Medical College, Chicago, 1903; aged 74; died, Oct. 27, 1930, of heart disease.

Sylvester A. Broughman, Dayton, Ohio; Medical College of Ohio, Cincinnati, 1890; aged 73; died, January 18, of heart disease.

Maximilian Pincus ✠ Chicago; Jenner Medical College, Chicago, 1908; aged 61; died, January 23, of chronic myocarditis.

Thomas A. Finley, Rockville, Mo. (licensed, Missouri, 1883); aged 85; died, January 18, of injuries received in a fall.

Joseph C. Shafer, Noble, Ill.; Eclectic Medical Institute, Cincinnati, 1907; aged 50; died, January 19, of pneumonia.

William G. O'Harra, Los Angeles; Chicago Medical College, 1884; aged 71; died, January 10, of heart disease.

Charles H. Fegers, Keokuk, Iowa; Keokuk Medical College, 1895; aged 58; died, January 19, of myocarditis.

David L. Weems, Stark City, Mo.; Missouri Medical College, St. Louis, 1882; aged 71; died, Nov. 30, 1930.

Bureau of Investigation

KOREMLU

A Dangerous Depilatory Containing Thallium Acetate

There has been on the market for some time a depilatory sold under the name of "Koremlu Cream," marketed first under the trade name "Kora M. Lublin," more recently under the style "Koremlu, Inc.," both of New York City. According to the advertising, Koremlu is "guaranteed to devitalize superfluous hair roots on face or any part of the body."

The preparation was first brought to the attention of the Bureau of Investigation by a Massachusetts physician, who sent in an article clipped from the *Boston Traveler,* published under the departmental title, "Beauty—And How." The article purported to be by one V. E. Meadows, who was described as an "International Authority on Beauty." Meadows' article stated, in effect, that until recently, he had not been able to recommend any preparation for the removal of superfluous hair, but that he now was in a position to recommend a depilatory cream that would "not only remove hair, but devitalize the roots, so that no more will grow." No mention was made in the article of Koremlu. A letter written to V. E. Meadows, however, asking for further information regarding the depilatory cream that he recommended, brought the reply that it was Koremlu and advised the writer to get in touch with Kora M. Lublin, who made it.

Soon after this, the Bureau of Investigation began getting inquiries regarding Koremlu and these have increased in frequency and number up to the present time. Some of these letters have reported that the Meadows person was on a "lecture" tour and was highly recommending Koremlu Cream. Among the letters thus received, some contained hints and others definite statements that Koremlu had some thallium salt as its base.

The use of a thallium salt, in the form of acetate, as a therapeutic agent has been known for some years among dermatologists. It has also been known that thallium acetate is an extremely toxic substance. THE JOURNAL has reported many cases of death from thallium acetate poisoning when the substance had been given internally. As long ago as 1912, Dr. Sabouraud, a French authority on diseases of the hair and scalp, devised an ointment of thallium acetate for use in the removal of superfluous hair. Since that time, accidents have been reported from its use. Because of these accidents, Sabouraud is said to have given up the method of using thallium for depilation purposes. The original Sabouraud prescription called for the introduction into the ointment of not over 1 per cent of thallium acetate. He repeatedly urged that even in this dosage one should use an amount of ointment not larger than two kernels of wheat, to be applied not more than once a day. Sabouraud has stated that if one uses an ointment containing a higher percentage, or even applies an ointment having but 1 per cent of thallium acetate over any extended surfaces, accidents may be expected. (See "Paris Letter," JOURNAL A. M. A., January 18, 1930).

It is equally well known by dermatologists that while thallium acetate, whether taken internally or applied externally, may result in complete baldness, the condition is but temporary and the hair will return. Prof. W. E. Dixon of Cambridge, who has done considerable experimental work with thallium salts, has brought out the fact, developed experimentally, that thallium induces a rapid growth of hair when administered to animals that have been shaved. He also reports that thallium salts exert no local action, but when rubbed into the skin with oil or alcohol, are readily absorbed and may produce systemic action. Incidentally, the physiologic effect of ingesting thallium is mainly on the autonomic motor system, which becomes more sensitive, so that electrical stimulation of nerves produces an exaggerated response.

Last November, the Bureau of Investigation received an inquiry from a high-class department store in Baltimore, asking for an expression of opinion regarding the possible dangers of Koremlu. The letter was written at the suggestion of Dr. Charles R. Austrian of that city. The Bureau of Investigation replied that Koremlu contained thallium, that it was a

poisonous substance and mentioned the fact that there had been reported deaths from the therapeutic use of thallium compounds. There was further mentioned the fact that only a few weeks previously, a letter had been received from a Baltimore physician regarding a patient who was acutely ill and who gave a history of having used Koremlu.

This reply to the request for information brought, a week or two later, a long letter from a firm of attorneys, who stated that they had been retained by Koremlu, Inc., to take action with reference to what were described as highly defamatory letters sent out by the Bureau of Investigation concerning Koremlu. The attorneys insisted that their client's preparation was not "merely harmless" but efficacious. As a clinching argument, they stated that the Health Department of the City of New York was "entirely familiar with the product and its ingredients" and had classed Koremlu "simply as a cosmetic."

. . and now those
UGLY HAIRS
can never grow again!
A Written Guarantee assures the permanent removal of unwanted hair
THOUSANDS of women both here and abroad now know the joy of an alluringly smooth and beautiful skin, forever free from the regrowth of ugly unfeminine hair. The Koremlu Cream Method —the achievement of a noted French scientist—not only removes the hair for all time, but actually is most beneficial to the skin itself.
Koremlu is a delightfully fragrant cream. You easily and quickly apply it to the skin like cold cream, and leave it on all night. The Koremlu Cream Method may be used with positive effectiveness on the face, legs, arms or any other part of the body.
The Koremlu Cream Method is not to be confused with temporary depilatories that merely burn off the hair and make it grow back coarser. Nor is it to be confused with any other method. The Koremlu Method is a permanent cure. It removes the hairs by weakening the follicles that hold the hairs in the roots, so that they are most easily lifted out. A number of applications definitely destroys the growth of hair. The Koremlu Cream Method, used regularly for a specific period as directed, is guaranteed by a signed, money-back guarantee to achieve the permanent results you have always hoped for—the complete and lasting removal of superfluous hair.
Rejoice that you can now be forever rid of all unwanted hair. Send the coupon today for our booklet containing full details of the Koremlu Cream Method.
Koremlu Cream is for sale at leading department stores (ask them for booklet). If you find that you cannot get Koremlu Cream in your locality, you may order direct from us.
KOREMLU INC., 11 W 42nd St., New York
KOREMLU
CREAM METHOD
of permanent
hair removal
KOREMLU Inc., 11 West 42nd St., New York, N. Y.

Reproduction (greatly reduced) of a column advertisement of Koremlu appearing in *Vogue*, Feb. 1, 1931.

On November 6, THE JOURNAL received an inquiry from Dr. Milton Sherry of Baltimore regarding the ingredients of Koremlu. Dr. Sherry wrote in part:

"Would you kindly let me know whether there is any lead or heavy metal present in this ointment, which would produce a condition simulating lead poisoning with lead colic? The patient at the present time is acutely ill and an immediate answer would be greatly appreciated."

A few weeks later, an interesting report appeared in the November 12 issue of the *Proceedings of the Staff Meetings of the Mayo Clinic*. It was entitled, "A Case of Thallium Poisoning," by John Lansbury, M.D. The case was that of a woman of thirty-eight, who was admitted to the Clinic with severe abdominal pain. The history was that five weeks before admission she started using Koremlu on her chin and upper lip. Two weeks later she was awakened one night with severe pains radiating across the thorax, a sense of constriction which made breathing difficult, and sleeplessness. In the course of a few days the pain shifted to the lower extremities, where it was felt mainly in the upper aspects of the thighs and the legs and toes. Later still she was seized with severe hypogastric pains, accompanied by constant nausea and vomiting quite unrelated to food. At the time of admission she was "doubled up" with an intense abdominal pain, the breath was foul, the hair was loose and easily pulled out. A diagnosis of thallium poisoning was made. Five days after admission the patient was entirely bald except for a fringe of hair extending around the base of the skull above the ears. The eyebrows and eyelashes were not affected. Within two weeks, the texture of the skin had returned to normal and the hair was starting again to grow, the patient at that time complaining only of a peculiar feeling as though her legs did not belong to her. Dr. A. E. Osterberg of the Clinic analyzed the depilatory and reported it to contain a large amount of thallium. Another member of the Clinic staff, Dr. E. J. Baldes, found thallium in small amounts in the urine by spectroscopic examination.

On the same day that the Bureau of Investigation received the attorneys' letter from the Koremlu concern, it received a letter from Dr. Henry B. Potter of Wakefield, R. I., enclosing a Koremlu circular and reporting an interesting case. To quote from the doctor's letter:

"A woman came in to see me a short time ago with a jar of this ointment and an interesting history. She is of a masculine type, strong-featured, has menstruated regularly every six months since puberty and has a strong beard (had, rather) that needed shaving every day. About three months ago, she began rubbing this ointment into her face and her beard is almost gone, only a few fine hairs left on her chin. About two weeks ago her cranial hair began to come out rapidly and now she has not over a hundred hairs left. These hairs form a fringe at the nape of her neck and look as if their time is short."

On December 15, Dr. C. J. Noonan of Brooklyn, N. Y., wrote:

"Have you any data on the constituents of the cream called Koremlu? I have a patient who has been using it on the lower limbs daily, five months. She has developed a severe multiple neuritis of obscure origin."

On December 20, a dietitian connected with a hospital in Pennsylvania wrote:

"I am interested in the cream known as Koremlu. People who are using it are experiencing pains appearing to be muscular in nature on the parts where this cream has been applied. Do you know the composition of it and can you give me any information which would prove or disprove that this product might be causing these pains?"

In view of these reports, and in spite of the fact that it was quite evident from information received from various sources that Koremlu contained thallium acetate, it seemed desirable for the information of the profession and the protection of the public that a detailed analysis of Koremlu be made, and the Bureau of Investigation asked the A. M. A. Chemical Laboratory to make such an analysis. The Laboratory report follows:

LABORATORY REPORT

"An original jar of Koremlu Cream (Koremlu, Inc., 11 West 42nd Street, New York City, price $10.00) was submitted to the A. M. A. Chemical Laboratory for examination. The label on the jar bore the following statements: 'Koremlu Cream devitalizes superfluous hair roots . . . Will induce baldness wherever applied when used as directed.'

"The jar contained 69.8 Gm. (approximately 2¼ ounces) of a light yellow ointment, strongly perfumed. Qualitative tests indicated the presence of thallium, zinc, acetate, petrolatum, traces of chloride and of saponifiable matter. Heavy metals (such as mercury, lead, arsenic and cadmium), sulphides, iodides, borates and salicylates were not found. Quantitative determinations yielded the following:

Thallium (Tl^{+})	5.57 per cent
Zinc (Zn^{++})	7.68 per cent

"This may be calculated to:

Thallium Acetate	7.18 per cent
Zinc oxide	9.56 per cent

"From the foregoing, it is concluded that the product examined consists essentially of an ointment having a petrolatum base, in which are incorporated approximately 7 per cent thallium acetate and 9.5 per cent zinc oxide."

In view of the chemists' report, it is again worth calling attention to the facts developed by Dr. Sabouraud. On the basis of long experience, he declares that any ointment containing more than 1 per cent of thallium acetate is dangerous. Koremlu was found to contain over 7 per cent! Sabouraud insisted that no larger amount of his one-per-cent ointment than that equal to two kernels of wheat should be used at a time; no limit is given to the amount of Koremlu that should be applied! As the whole trend of the Koremlu advertising emphasizes that the stuff is harmless, it is to be expected that women purchasing this product will apply it with the same

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easy abandon that they use in applying face creams and vanishing creams. It is hard to believe that Kora M. Lublin, who seems to be behind this product, realizes the dangerous properties of the preparation she markets. It is kinder to assume that ignorance, rather than a callous disregard for public safety, prompts the sale of Koremlu!

There is one other point that seems to deserve some attention —that is, the wide discrepancy between the commercial value of Koremlu and its selling price. The approximate cost of the ingredients that go into a jar of Koremlu, selling at $10, is less than thirty-five cents! This allows 27 cents for the thallium acetate, 1 cent for the zinc oxide, and 4 cents for the petrolatum. However, Koremlu's assault on the public's pocketbook becomes a minor indictment; the major objection is its menace to the public health.

Correspondence

USE OF WHITMAN SPICA

To the Editor:—In THE JOURNAL, January 10, Dr. Walter I. Galland describes a "modified Whitman spica" for the treatment of fracture of the neck of the femur. In his opening paragraph Dr. Galland makes several statements which are so completely at variance with my own experience, and, I am sure, with that of every one who knows *how* to apply a plaster-of-paris spica bandage, that I am compelled to correct the impression the doctor creates, namely, that undesirable results attend the use of the ordinary or, what Dr. Galland calls, a "full" spica.

Dr. Galland says that

> the application of a full spica, extending from the ribs to the toes in an elderly patient, is an expedient often fraught with serious consequences. On account of the dorsal decubitus which the spica necessitates, plus the undue confinement of the costal cage, with consequent diminution of the respiratory excursion, the patient is exposed to the great danger of hypostatic pneumonia. Many patients who are treated for fracture of the neck of the femur in the classic spica succumb not to the fracture but to hypostasis in the pulmonary circulation.

In an experience that extends over a period of more than twenty years, during which I have treated very many elderly patients with fractures of the hip, not only at the Hospital for Ruptured and Crippled but in several general hospitals, I have not had a single case of hypostatic pneumonia. This despite the fact that some of my patients were well over 80 years of age, and in one instance 93 years old. Dr. Galland's experience must indeed be unfortunate if "many patients treated in the classic spica succumb . . . to hypostasis in the pulmonary circulation." I have been called to patients with fractured hips who had hypostatic pneumonia, were suffering intensely, and were in a deplorable state. But these patients were lying in bed without support, and because of pain in the injured area could not be moved and were left in one position continuously.

Dr. Royal Whitman has repeatedly emphasized the need for proper protection of the body under any plaster dressing, and for many years it has been the practice in treating a fracture of the hip to apply twelve layers of sheet cotton to the chest between the shirting and the plaster bandages. This provides a space of at least two inches, and often more, between the patient's skin and the plaster, permits an expansion of the chest of at least four inches, which is more than the average young adult has, and surely more than the aged person has or needs, and precludes any diminution of the respiratory excursion.

Dr. Galland further states that the spica necessitates dorsal decubitus. No such thing. One of the main advantages of a full plaster spica is that it permits free, easy and frequent changes of position. A patient with a plaster spica can, should, and under proper treatment is turned on his face at least three times in the twenty-four hours, and left in that position for at least an hour. In a well applied Whitman abduction spica there is nothing simpler than to turn the patient. I have often done it alone, and any person, nurse or attendant, can be shown how to do it unaided.

The primary requisite in the use of a plaster spica in the abduction treatment of a fracture of the hip is to appreciate every detail of the plaster technic. The skin should be thoroughly powdered. A smooth stockinet drawer extending from above the nipples to the toes is put on. The trunk and limb are enveloped in sheet cotton, twelve layers being used for the chest, from six to eight layers for the abdomen and pelvis, and from two to three for the thigh, leg and foot. A flannel bandage is then put on over the cotton, after which the plaster bandages are rolled on. The plaster is rubbed thoroughly to avoid wrinkles. When this dressing is completed there should not be, and there need not be, any compression of any part of the body. On the contrary, the plaster spica is a firm, smooth, comfortable support, completely relieving the patient of all pain.

The head of the bed should be raised on stilts from twelve to fifteen inches high. A fracture board must be inserted under the mattress to make the bed unyielding. Placed on this kind of a bed, the patient will be able to look about him and be entirely comfortable. The attendant should turn the patient on his face at least three times a day, and the surgeon on his daily visit should put his hand under the plaster along the edges to make sure that there is no undue or unnecessary pressure.

There is no more comfortable or grateful patient than one with a fractured hip treated in a "competent" plaster-of-paris full spica bandage. Such a patient has plenty of room for breathing. He has frequent changes of position, so that he does not get pulmonary hypostasis and does not die of hypostatic pneumonia.

SAMUEL KLEINBERG, M.D., New York.

[NOTE.—The letter of Dr. Kleinberg was referred to Dr. Galland, who replies:]

To the Editor:—It was not my purpose to belittle the importance or the wide applicability of the Whitman spica, which I have used and which I feel I know how to apply. However, I do not think that the absolute comfort and safety of the elderly patient in the high spica is a universally accepted fact; for I have observed that many physicians have difficulty in completely safeguarding such patients against the immobilizing effects of the high spica on the thorax. I have found the method of trimming which I described to be both comfortable and effective, but I do not pretend that it is in any way a radical departure from the precepts of the Whitman method of treatment.

I agree with Dr. Kleinberg that my statement that the Whitman spica necessitates the dorsal decubitus is not entirely tenable, as I well know the possibility of turning the patient in this spica. However, patients treated away from ample nursing facilities are frequently permitted to remain in the dorsal decubitus, and the admonition that the patient be frequently turned is not always meticulously followed. Ability to free the costal cage more completely may at times be a desirable safeguard. It is obvious that if, by a simple variation in the trimming of the plaster, even a small measure of additional protection and comfort may be given to the patient without sacrificing the position of the fragments, one should certainly be privileged to vary slightly the classic spica of Dr. Whitman.

WALTER I. GALLAND, M.D., New York.

FETUS PAPYRACEUS

To the Editor:—In Queries and Minor Notes in a recent issue of THE JOURNAL (January 24, p. 291) under the heading "Complicated Twin Pregnancy," the following statement is made: "A fetus papyraceus may also be found in the presence of triplets, and in most of these instances two children are born alive and the third is a small compressed fetus." This, I believe, is not in accord with fact since in a review of the literature on the subject of papyraceous fetuses in triplet pregnancy (Beierlein, K. M.: *Am. J. Obst. & Gynec.* **21**:97 [Jan.] 1931) I found twenty-one cases, including one of my own, of twin papyraceous fetuses as opposed to four cases of single

papyraceous fetuses in that connection. Since my paper was submitted for publication, the number of reported cases in the first group has been augmented to twenty-two (Williams, F. M.: *Am. J. Obst. & Gynec.* **19**:837 [June] 1930).

KARL M. BEIERLEIN, M.D., Ann Arbor, Mich.

"MISLEADING METHYL CHLORIDE PUBLICITY"

To the Editor:—We have read your editorial, "Misleading Methyl Chloride Publicity" (THE JOURNAL, January 24, p. 272). Assuming that you present data to substantiate your criticisms it is, of course, your privilege to disagree with results that the Bureau of Mines may publish. However, technical criticism is a different matter from indulging in such outbursts as that in your concluding paragraph:

> "It is unfortunate that a branch of the government, the Bureau of Mines, which has had such an enviable record in the past, has recently seemed to be swayed to serve more the interests of certain chemical manufacturers than to serve the interests of the public. It is laudable that the government should investigate general hazards to the public, but it is quite unfortunate that independent action may be threatened by considerations arising from the fact that research is carried on under 'cooperative agreements.'"

For some years the Bureau of Mines has carried out investigations, through formal contracts, with private individuals and private firms. They have gone to the Bureau of Mines presumably because of its experience, facilities, and the integrity of its personnel. No one in the bureau is a penny the richer as the result of such work; nor is the problem accepted unless it promises to produce information of value either to science, to industry, or to human welfare. The firm or individual submitting the problem pays the bill—as he should—but has no control over the prosecution of the work or of the results obtained.

With regard to the report on methyl chloride poisoning, which you discuss, we wish to point out that you have ignored the earlier and much more extensive study of the compound, which has already been published by the Bureau of Mines, and in which the toxic properties of methyl chloride are fully described. Apparently you believe that the brief report on a single feature, about which the Roessler & Hasslacher Chemical Company requested information, was the only one made.

We regard the series of papers from the Bureau of Mines—now appearing in *Public Health Reports*—on the toxicity of various new commercial solvents, as an important contribution to industrial toxicology but not necessarily the final word. If you read these reports you will find the bureau has done a great deal more than search for "warning agents" which "are not a guarantee of protection." Incidentally, your distinction between a toxic gas like ammonia which warns, and one to which a warning must be added, is subtle to say the least.

It seems to us that one of the important duties of the Bureau of Mines is to investigate the toxicity of new substances, used in industry, which may affect the public health. It represents an impartial agency for protection against hazardous advances made by industry. That its reports may be misrepresented in ill advised advertising is not a criticism of this bureau, but of the inability to control public misrepresentation. If the American Medical Association disagrees it would be more fitting for them to set up machinery to do the bureau's work than to make unsupported attacks upon the integrity of its personnel.

JOSEPH C. AUB, M.D. DAVID L. EDSALL, M.D.
CECIL K. DRINKER, M.D. ALICE HAMILTON, M.D.
PHILIP DRINKER, CH.E. REID HUNT, M.D.

NOTE.—A careful rereading of the editorial in question should convince any one that its whole purpose is constructive. It does not attack the integrity of the personnel of the Bureau of Mines. It suggests merely the danger in a situation which may lay them open to such attacks.—ED.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

USE OF POTASSIUM THIOCYANATE IN HYPERTENSION

To the Editor:—Please give data on potassium thiocyanate in essential hypertension. How does it act? What are the dangers and contraindications?

F. R. FRAZIER, M.D., Yorkville, Ill.

ANSWER.—The fact that thiocyanate resembled, even exceeded, the iodide ion in solvent action on aggregations of colloids suggested its trial in conditions analogous to those in which iodide has been found useful; and it, indeed, seems to resemble iodide in its therapeutic as well as in its untoward effects, excepting in one notable respect: it does not affect the thyroid gland. In view of present inability to account satisfactorily for the effect of iodides on the circulation, in spite of extensive studies and the elaboration of several theories, none of which have found general acceptance, it is not to be wondered at that the action of thiocyanate, which has been subject to much less study, cannot as yet be satisfactorily explained. The reduction of blood pressure is dependent on the dose. The small dose of 0.1 Gm. (1½ grains) three times daily frequently fails to produce an appreciable reduction. It also does not, as a rule, cause unpleasant by-effects, though such have been reported in the form of uncomfortable weakness, anginal symptoms, exfoliative dermatitis and coryza. It is well to use such dosage initially to test the patient's tolerance. The large dose, 0.3 Gm. (5 grains) three times a day, reduces blood pressure in a majority of cases within several days or weeks; but it is so liable to cause untoward results that patients receiving these doses must be under careful supervision. Not only are they liable to complain of intolerable weakness, chiefly in the arms and legs, and of vertigo but, especially if the dose is increased to 0.6 Gm. (10 grains) three times a day, a toxic psychosis may become superadded, with disorientation, hallucinations, mania, confusion, and ideas of persecution, lasting perhaps a week after discontinuance of the dosage. As these psychic disturbances are quite regularly preceded by the stage of weakness, it is advisable to discontinue the drug with its onset and to resume a smaller dose after the feeling of weakness has disappeared. Definite contraindications do not seem to have been worked out, excepting that severe kidney damage increases tendency to intolerance. The Council on Pharmacy and Chemistry refused admission of potassium thiocyanate to New and Nonofficial Remedies because it considered the evidence for the drug's therapeutic value inconclusive and published a report stating the limitations of therapy with this drug (THE JOURNAL, June 1, 1929, p. 1838).

CRANBERRIES AND DIGESTION

To the Editor:—Please advise whether the organic acid content of a usual portion of cranberry sauce with an average meal is an aid to digestion and whether the cranberries act as a stimulus to gastric secretion?

M.D., Illinois.

ANSWER.—The organic acid content of an average portion of cranberries with the meal is not capable of materially or significantly changing the degree of acidity (p_H) of the gastric contents in normal gastric digestion. Because of the relatively small quantity of citric acid that would be ingested and its low ionization, since it is a weak acid, it would exert no practical buffering effect. Under normal conditions of gastric digestion the hydrochloric acid-pepsin factor of safety is large. Any acidity change of the gastric content attributable to the cranberries would but slightly affect this factor.

Citric acid, the chief organic acid of cranberries, given in adequate quantities in gastric hypo-acidity would probably exert a favorable influence on gastric digestion. So far as is known from the literature, the effect of citric acid on gastric secretion has never been investigated.

To one fond of cranberry sauce its ingestion will certainly excite a psychic secretion of gastric juice; this is known to be true for orange juice also. Cranberries, however, do not contain secretagogues or chemical substances other than citric acid which may stimulate gastric secretion on introduction into the stomach. There is a probability that they may stimulate pancreatic secretion when in the intestine.

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CHRONIC ENDOCERVICITIS DURING PREGNANCY

To the Editor:—What measures can you suggest which may safely be used in the treatment of chronic endocervicitis (nongonorrheal) during the latter half of pregnancy? What is the liability of postpartum infection from this source? Kindly omit name.

M.D., New York.

ANSWER.—If chronic endocervicitis does not produce annoying symptoms, it is best left untreated during pregnancy. A few weeks after delivery it should be treated, chiefly by means of the electrical cautery. If, however, symptoms such as bleeding or profuse discharge occur during pregnancy, treatment should be instituted. Miller, Martinez and Hodgdon (THE JOURNAL, Sept. 27, 1930, p. 923) favor the treatment of endocervicitis by means of cauterization during the first half of gestation even when there are no symptoms of the condition. They found erosions in 80 per cent of multiparas and in 10 per cent of primiparas. In a series of more than 2,000 cases in which the cervix was cauterized, only one abortion occurred. These authors maintain that this therapy is a prophylactic measure against puerperal sepsis rather than a contributing factor. In their series no case of sepsis occurred in women with healed cervices, while during the same period two cases of severe sepsis occurred in cases in which the erosion was too extensive or lacerations too deep to allow successful cauterization. Temperatures were remarkably flat, in contradistinction to the moderate elevations in the noncauterized group.

LEAKAGE OF FLUID DURING INJECTION OF VARICOSE VEINS

To the Editor:—Recently I gave an injection of sodium salicylate for varicose veins. This was the sixth or seventh injection. It was given in the vein just below the popliteal area, and, after the fluid was about half in, the patient noticed a tremendous burning and stinging sensation over the middle of the lower third of the tibia, right under the skin. In a day or two this became red, much resembling a contusion, and it became quite painful. This, in a sense, has healed and, in a sense, has not healed. The same soft contused looking type of a mass is about 3 inches above the original lesion. It seems to heal as it ascends and is constantly painful. Nothing seems to give much relief. The mass resembles more a squashed mulberry under the skin than anything else I know of. Anatomically, I do not see what connection this could possibly have with the injection, and I would be interested to know whether any similar condition is on record. The patient is not exactly mad about it but is disgusted, and as the condition seems to heal it leaves pigmented spots which she would not mind if they were above the knees, but it annoys her to have them below the knees.

LOUIS E. SHERMAN, M.D., Oakland, Calif.

ANSWER.—The history of sudden burning and stinging at the time of injection means a leakage of the irritating sodium salicylate. The tissue necrosis following such leakage does not necessarily break through the skin but persists as a hard, painful mass for a long time. The fact that such periphlebitic patches are not at the site of injection but below it and above it means that there was a latent phlebitis and periphlebitis present, which became activated and now ascends in patches. The hemorrhagic exudate which follows the injection of highly irritating substances, such as sodium salicylate, absorbs with residual pigmentation. Concentration, amount of solution, and constriction of the limb below and above the injection are important factors to bring about such leakage in particularly weak spots. If application of 30 per cent mercurial ointment and supportive measures do not bring relief, the excision of the entire segment by an experienced surgeon could be considered.

INDUSTRIAL HAZARD OF CHROMIC ACID

To the Editor:—I am engaged in research involving electrolysis with chromic acid and am more or less exposed at times to the vapors arising from it. I am aware of the insidiousness of them and take precaution against them, but I should like to know something of the physiologic and pathologic effects on the body and something of the treatment indicated. What is your opinion of sodium thiosulphate for counteracting the effects on the skin?

S. H. WILLIAMS, Creighton, Pa.

ANSWER.—Industrial exposure to chromic acid, chromates or bichromates may lead to the following related lesions:

1. A diffuse dermatitis, usually on the hands and forearms.
2. "Chrome holes," single or multiple ulcerations of the skin and subcutaneous tissues, ordinarily at the site of previous skin injuries.
3. Inflammation of the respiratory mucous membranes, with perforation of the nasal septum.

The diffuse dermatitis from chromium compounds is a simple chemical lesion, which, in the usual case, tends to heal with or without treatment, if exposure is not repeated. Secondary invasion by fungi may lead to a highly resistant condition. Apparently, enough disinfectant properties of the chromium compound are retained in "chrome holes" to keep down infection; at least, frank bacterial invasion is not the rule. The inflammation of the respiratory tract may extend to the bronchioles, although it is usually limited to the nasal membranes. The septal perforation occurs at that point least supplied with blood in the area where squamous epithelium gives way to columnar. This area is in the line of the sweep of dusts and fumes taken in through inhalation.

Systemic disease from chromium is not a known result of industrial exposure. Its action is purely local. Just as little is known about the action of chromium compounds in tanning skins and hides, little is known about the state of the chromium compounds in their contact with human flesh. The action on tissues persists and spreads in spite of the usual efforts to arrest its progress. It is possible that chromic acid is changed into a chromate in the tissues and as such becomes fixed.

Those agents used in treatment are calculated to speed up reduction, with the formation of chromium hydroxide as the objective. This substance is less soluble and less irritating than the chromates. Sodium thiosulphate and ammonium polysulphide hasten reduction but, apparently, do not remove the chromium from the damaged tissues. Solutions of sodium lactate, sodium citrate or potassium and sodium tartrate are "stripping agents." It is stated that any one of these chemicals in weak solution, applied locally as wet dressings, tends to break down the chromium fixation in the tissues.

The spraying of mineral oil applications on mucous membranes provides a barrier, lessening the likelihood of harm from chromium fumes.

STATUS OF DICK SCARLET FEVER ANTITOXIN

To the Editor:—A representative from E. R. Squibb and Sons was in my office today and made the statement that the Dick scarlet fever toxin was absolutely free from those substances which former scarlet fever toxins contained which produced damage to the heart muscles and to the kidneys. Will you kindly give me the present status of the Dick scarlet fever toxin relative to its safety as an immunizing agent against scarlet fever?

FORREST S. ETTER, M.D., Bartlesville, Okla.

ANSWER.—The Dick scarlet fever toxin is regarded as a safe and efficient immunizing agent against scarlet fever. The main drawback to its use appears to be that several injections, generally not less than five, must be given before such a degree of immunity is established that the subject no longer gives a positive Dick test. The experience so far does not indicate that immunization with the toxin as practiced produces recognizable harm to the heart or the kidneys, but to say that the toxin is "absolutely free" from injurious substances is, of course, going a little too far. Detail men should learn the value of understatement as compared with overstatement of what is known.

TREATMENT OF BONE TUBERCULOSIS

To the Editor:—A man, aged 30 years, has had tuberculosis of the bone for the last fifteen years. It started with tuberculosis of the hip and gradually extended to the lumbar vertebrae. The active process healed, though there is partial ankylosis in both regions. About five years ago, he developed tuberculous arthritis of the right shoulder. (This was confirmed by guinea-pig injection from the aspirated fluid of the joint.) Roentgenograms were taken at various intervals, and the last one shows a progressive destructive arthritis, involving the head of the humerus and the glenoid extremity of the scapula. At present there is limitation of motion and pain in the joint. A well known orthopedic surgeon advises surgical treatment by bone grafting, thus producing ankylosis. Otherwise, the surgeon states, there may be a general spread of the disease and it may even result in pulmonary tuberculosis. Will you inform me whether or not an arthrodesis is the only treatment in this case, or would complete rest of the joint in addition to physical therapy, heliotherapy and diet suffice? The patient is well nourished and otherwise well. Kindly omit name and address.

M.D., New York.

ANSWER.—Arthrodesis in a position of election is not the only treatment, but it is the best. Complete rest of the joint in addition to heliotherapy, proper diet and hygiene may result in an ankylosis of the joint.

REMOVAL OF CORNS

To the Editor:—A man, aged 42, has been afflicted with recurrent corns (both soft and hard) on his small toe for three or four years. Salicylic acid locally in various combinations has proved futile. For the past eighteen months he has been treated by a chiropodist, who cut the corns at periodic intervals. I would appreciate your opinion on the efficacy of the cautery (patient is not diabetic) and would welcome other suggestions. Please omit name.

M.D., New Jersey.

ANSWER.—The cautery is effective in removing both hard and soft corns. However, roentgen or radium therapy is preferred to the cautery.

CHILLINESS AND GOOSEFLESH BETWEEN MENSTRUAL PERIODS

To the Editor:—Kindly give me your opinion as to the cause and also suggestions for treatment of the following case: A woman, aged 43, complains of extreme chilliness with waves of gooseflesh over her entire body about ten days before menstruation begins and sometimes during that period. Menstruation is otherwise normal. Do you consider these symptoms unusual? Please omit name and address.

M.D., Illinois.

ANSWER.—These symptoms are unusual and difficult to combat. It is generally believed that there is no definite effect exerted by menstruation on the body temperature. Some observers, however, hold that the temperature of the body is at its lowest midway between the menstrual periods and then gradually rises to a maximum about one or two days before the flow of blood begins. Other authorities maintain that the reverse is true. In the case cited, a difference in body temperature about ten days before the onset of the menses may explain the chilliness. This difference can, of course, readily be detected; but even if there is a drop in temperature it may be difficult to prevent this. If there is a psychic factor in the sensations of chilliness and gooseflesh, an attempt should be made to treat it.

O. W. LILLY'S SOLUTION, DENTAL

To the Editor:—I have a patient who had prescribed for him by a dentist a preparation known as "Lilly's Solution, Dental" made by the Lilly Dental Products Company of Welch, W. Va. The patient who used it noticed a dark discoloration of the tongue and teeth a few days after he began using it. Several days after its use was discontinued, the discoloration disappeared. I will appreciate it if you will let me know what the ingredients of the solution are. M.D., Roanoke, Va.

ANSWER.—The A. M. A. Chemical Laboratory reports that qualitative tests indicated the presence in relatively large amounts of mercury, iodide and an arsenic compound. The solution was alkaline to litmus. It is quite likely that the preparation contains potassium mercuric iodide and an arsenic compound, such as "Solution of Potassium Arsenite U. S. P." (Fowler's solution).

The product is apparently prepared by one Dr. O. W. Lilly of Welch, W. Va. It is recommended by the proprietor for Vincent's infection and all other acute, infectious, ulcerative conditions of the gums and oral mucosa, infected sockets, and pyorrhea. It is a pity that a mixture of such potent ingredients may be dispensed under a proprietary name to the patient for pathologic conditions of the oral cavity. If a dentist or a physician desires to have his patient use a solution containing a mercury or an arsenic compound, it should be prescribed according to the individual needs, with full appreciation on the part of both prescriber and patient of its poisonous character.

MAILING OF LABORATORY SPECIMENS

To the Editor:—After limited search I have been unable to find any information as to how to prepare for shipment different specimens for laboratory examination. Can you give me a reference where I may obtain such information? I am interested especially in: (1) how to collect and prepare for shipment a specimen of spinal fluid for the complement fixation test for syphilis; (2) a specimen of feces for culture for the typhoid bacillus; (3) specimen of blood for culture for typhoid bacillus; (4) material from the throat for examination for diphtheria; (5) a blood smear for examination for malarial parasites. ——, Michigan.

ANSWER.—In sending specimens for laboratory examination through the mail, it is required that the postal clerks be not exposed to infection. To this end, there has been included in the Postal Laws and Regulations, section 473, specifications as to the preparation of certain specimens. These regulations have been somewhat modified in later years; they may be found at any postoffice. There has been little published on this question, since each laboratory has prepared mailing outfits in accordance with its own needs and the requirements of the postoffice department. The laboratory of each state health department will gladly supply additional information on request. If the specimens are to be sent by messenger instead of through the mails, no special requirements are necessary.

1. Spinal fluid for the complement fixation test for syphilis can be sent in a sterile test tube enclosed in an ordinary cardboard mailing tube with a screw top. The same applies also to blood specimens for the Wassermann test.

2. Specimens of feces for culture for typhoid bacilli require a double mailing container, the inside tube of tin and the outside of cardboard, each with a screw top. The specimen should be mixed with glycerin or some other preservative which will not destroy the typhoid bacillus and yet will prevent the overgrowth of the colon bacillus.

3. Blood for culture for typhoid baccilli can be sent in a sterile glass test tube the same as for the Wassermann test, except that a double mailing container is required instead of a single mailing tube. In some laboratories, Keidel tubes containing broth are used for this purpose. At any rate, the inside mailing tube must be of tin with plenty of cotton packing so that in case the glass tube is broken in transit the mail clerks will not be exposed to infection.

4. Throat cultures for examination for diphtheria, if sent on cotton swabs, require the swab to be placed in a test tube and the test tube placed in a cardboard mailing tube with metal ends and screw top. If the specimen is swabbed on Loeffler's medium, this must be sent in a double mailing tube.

5. Blood smears for examination of malarial parasites can be made in the ordinary way and the microslides placed in a single cardboard mailing tube.

USE OF DIPHTHERIA TOXOID

To the Editor:—Instructions coming with the preparations of diphtheria toxoid (Ramon) prepared in this country suggest that it be used in children over 1 year of age and that results obtained in infants under 6 months of age are unsatisfactory. Is there any recent statistical evidence showing results obtained with toxoid in infants from 6 months to 1 year of age? As toxin-antitoxin mixtures require months to produce an active immunity and are usually not given until an infant is 6 months of age, which method would give the better results—to refrain from using toxoid until the child is 1 year old and use antitoxin in cases of exposure, or to use toxoid injections at the age of 6 months and attempt to develop an active immunity? If the latter, what is the clinical evidence of the percentage of immunity developed?

R. O. BASSUENER, M.D., Sheboygan, Wis.

ANSWER.—As yet the statistics on results with toxoid in infants between 6 and 12 months of age are not sufficient to answer satisfactorily the questions asked. It should be noted that infants are relatively insusceptible to diphtheria and consequently do not require urgently or as a rule to be immunized.

PARALYSIS OF SERRATUS MAGNUS

To the Editor:—Can you give me information as to the nonsurgical treatment of a paralyzed serratus magnus muscle, resulting in a "winged scapula" condition? Any citations to recent book or journal articles will also be appreciated, as available references content themselves with saying "prognosis unfavorable." Please omit name and address.

M.D., Massachusetts.

ANSWER.—The nonsurgical treatment of a paralyzed serratus magnus muscle would be physical therapy, radiant heat, gentle massage, diathermy and the application of a brace to hold the shoulder in a backward position. The simplest splint for this purpose is the one described by R. V. Funston, in THE JOURNAL, Sept. 15, 1928. Concerning references to operations, I would suggest the one by Schrock and Koenig's operation described in Whitman's new book, "A Treatise on Orthopaedic Surgery," published by Lea and Febiger, Philadelphia, 1930.

RECURRENT DISLOCATION OF SHOULDER JOINT

To the Editor:—A man, aged 30, has a recurring subcoracoid dislocation of the right shoulder joint. Each successive dislocation has been more difficult to reduce. What prognosis may be given that an open operation on the joint will entirely correct this condition? Which operation would be the one of choice in this particular case? Have there been any new operations devised for this condition in the past three years? Please omit name. M.D.

ANSWER.—The prognosis in this condition is very good. The most generally accepted operation today is that designed by Henderson. This consists of a tenosuspension from the acromion process to the head of the humerus, using a piece of the peroneus longus tendon. In Henderson's last article, which appeared in THE JOURNAL, Nov. 29, 1930, a bibliography is given.

UNTOWARD EFFECTS OF GOLD THIOSULPHATE

To the Editor:—I have a patient to whom I have been giving gold thiosulphate; 18 cc. doses were given three times a week, in conjunction with violet radiation. The patient is now complaining of an absolute loss of taste. I read an article in your magazine regarding this treatment for lupus vulgaris, for which I have been using it, and I am anxious to know whether this loss of taste is usual, and if so, is it a permanent condition? A. J. LANGAN, M.D., San Pedro, Calif.

ANSWER.—Stomatitis is a rather common untoward effect of the treatment, generally in association with an exanthem. A fairly extensive search of the literature failed to reveal mention of loss of taste sensation as an untoward effect. If this is due to the drug, the probabilities are that, in time, the effect will disappear as do the other untoward actions of this agent.

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Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALASKA: Juneau, March 3, 1931. Sec., Dr. Harry C. De Vighne, Juneau, Alaska.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: Written examination in nineteen cities in the United States and Canada. March 14, 1931. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh, Pa.

CALIFORNIA: Reciprocity, San Francisco and Los Angeles, March 18, 1931. Sec., Dr. C. B. Pinkham, 420 State Office Bldg., Sacramento, Calif.

CONNECTICUT: Homeopathic, New Haven, March 10, 1931. Sec., Dr. E. C. M. Hall, 82 Grand Ave., New Haven, Conn.

MONTANA: Helena, April 7, 1931. Sec., Dr. S. A. Cooney, Power Block, Helena, Mont.

NEW HAMPSHIRE: Concord, March 12-13, 1931. Sec., Dr. Charles Duncan, Concord, N. H.

OKLAHOMA: Oklahoma City, March 10-11, 1931. Sec., Dr. J. M. Byrum, Shawnee, Okla.

PORTO RICO: San Juan, March 3, 1931. Sec., Dr. Diego Biascoechea, Box 804, San Juan, P. R.

WISCONSIN: Madison, March 21, 1931. Basic Science. Sec., Prof. R. N. Bauer, 3414 W. Wisconsin Ave., Milwaukee, Wis.

Hawaii October Examination

Dr. James A. Morgan, secretary of the Board of Medical Examiners of Hawaii, reports the written examination held at Honolulu, Oct. 13-16, 1930. The examination covered 10 subjects and included 55 questions. An average of 75 per cent was required to pass. Nine candidates were examined and passed. The following colleges were represented:

PASSED		
College	Year Grad.	Per Cent
Birmingham Medical College	(1910)	76.2
University of California Medical School	(1929)	82.8
University of Louisville School of Medicine	(1929)	76.6
St. Louis University School of Medicine	(1929)	76
Washington University School of Medicine	(1930)	80.9
University of Pennsylvania School of Medicine	(1929)	84.6
University of Virginia Department of Medicine	(1918)	75.6
University of Toronto Faculty of Medicine	(1927)	76.7
University of St. Thomas College of Medicine	(1928)	82.8

Dr. Morgan also reports 2 physicians licensed by the endorsement of credentials at the same meeting. The following colleges were represented:

ENDORSEMENT OF CREDENTIALS		
College	Year Grad.	Endorsement of
Stanford University School of Medicine	(1930)	N. B. M. Ex.
University of Nebraska College of Medicine	(1928)	N. B. M. Ex.

Montana April and October Examinations

Dr. S. A. Cooney, secretary of the Board of Medical Examiners of Montana, reports the written examinations held at Helena, April 1 and 2, and Oct. 7 and 8, 1930. Each examination covered 10 subjects and included 50 questions. An average of 75 per cent was required to pass. Thirteen candidates were examined and passed. The following colleges were represented:

PASSED		
College	Year Grad.	Per Cent
Northwestern University Medical School	(1926)	85.2
Rush Medical College	(1929)	85
University of Illinois College of Medicine	(1930)	82.8
University of Maryland School of Medicine	(1917)	76.8
University of Minnesota Medical School	(1929) 81.4, (1930)	80.5
St. Louis University School of Medicine	(1929)	77.7
Creighton University School of Medicine	(1928)	83
University of Nebraska College of Medicine	(1930)	81.8
Ohio Medical University	(1901)	76.8
Univ. of Oregon Med. School	(1926) 82.8, (1928) 86.1, (1929)	83.8

Dr. Cooney also reports 15 physicians licensed through reciprocity with other states at the same meetings. The following colleges were represented:

LICENSED BY RECIPROCITY		
College	Year Grad.	Reciprocity with
Hahnemann Medical College, Chicago	(1883)	Iowa
State University of Iowa College of Medicine	(1925)	Iowa
Kansas Medical College	(1913)	Kansas
Harvard University Medical School	(1923)	Minnesota
University of Michigan Medical School	(1926)	Minnesota
University of Minnesota Medical School	(1915), (1924)	Minnesota
Barnes Medical College	(1908)	Tennessee
Beaumont Hospital Medical College, St. Louis	(1897)	S. Dakota
Marion-Sims College of Medicine	(1899)	Utah
St. Louis University School of Medicine	(1926), (1928)	Missouri
University Medical College of Kansas City	(1908)	Kansas
Creighton University School of Medicine	(1928)	Nebraska
University of Nebraska College of Medicine	(1929)	Nebraska

Book Notices

METHODS AND PROBLEMS OF MEDICAL EDUCATION (EIGHTEENTH SERIES). Paper. Pp. 329, with 18 illustrations. New York: Rockefeller Foundation, 1930.

This report consists of thirty-two articles written by men who represent leading schools of the United States, Canada, England, Wales, France, Germany, Denmark, Belgium, Jugoslavia, Argentina, India, Siam and South Africa. Four of the articles are published in French, three in German and the remainder in English. The report presents methods of instruction and teaching experiments with particular reference to physiology, biochemistry and physiologic chemistry and also tends to emphasize the rôle of the hospital and outpatient department as teaching units for undergraduate medical students. The book is profusely illustrated with floor plans of the buildings described and photographs of the interiors and equipment. In the foreign articles a summary is given of the history of medicine in the country, a description of the buildings, departments and equipment, an outline of departmental budgets and personnel, and detailed accounts of the curriculum. The papers regarding American universities, in addition to historical data and building information, furnish comprehensive statements relative to instruction and opportunities for research. Several special features in this report include methods for photographing gross pathologic specimens; a description of the "Heart Station" of the University of Michigan Hospital, and one of the work and equipment of the Chevalier Jackson Bronchoscopic Clinic, Temple University Hospital, Philadelphia. The articles are all most interestingly written and the contents reveal a great deal of thought in preparation. The report is unique in its scope, containing, as it does, material that is not available in general medical journals. It gives one a splendid idea of comparative teaching methods here and abroad and is particularly recommended to officials of medical schools.

THE EFFECT ON FOODS OF FUMIGATION WITH HYDROGEN CYANIDE. By G. W. Monier-Williams, O.B.E., M.C., M.A. Reports on Public Health and Medical Subjects, No. 60. Ministry of Health. Paper. Price, 6d. Pp. 32. London: His Majesty's Stationery Office, 1930.

This covers the experience of the foods laboratory of the ministry of health and the work of others in connection with the retention of hydrogen cyanide in foodstuffs after the use of that substance for fumigation purposes. While possessing no germicidal of fungicidal properties, hydrogen cyanide is admirably suited to most of the requirements of an ideal fumigant for the destruction of rats, moths, weevils, and other vermin and insects in such locations as the holds of ships. It exerts no deleterious action on fabrics, painted objects or metals, is highly efficacious and is readily dispersed. Three objections attend its use—the lack of a definite characteristic odor or other warning property, its high toxicity for man and the domestic animals, and its entry under some conditions into foods in amounts that may cause harm to the consumer or cause the decay of the food. The amount of hydrogen cyanide constituting the threshold of danger to man cannot be fixed with definiteness. As little as 10 mg. per hundred grams of food is cited as a possible harmful quantity. The author cites many instances of foods containing a higher amount of hydrogen cyanide than this possible minimum. Dates, figs, honey, cocoa, bacon and sausages (all foods with a high moisture content), tested after having been aired twenty-four hours after fumigation, have proved to contain from 278 to 890 parts of hydrogen cyanide per million parts of air. Fumigation by means of hydrogen cyanide carried out in excess of requirements, particularly when used on fresh fruits or vegetables, may lead to commercial destruction or damage by interference with normal respiratory processes, or by the modification of characteristic odor or tastes. The dangers of hydrogen cyanide poisoning of foods stands in relation to the quantity of gas, the duration of application, the moisture content of the foods, the size of the particles or units of foods, methods of packing, and the period of ventilation after fumigation. Foods treated with not more than 1 volume of hydrogen cyanide in 200 volumes of air, with subsequent exposure to the air, do not usually contain more than 20 parts of the intoxicant per million of the food products.

Computation of hydrogen cyanide concentrations in fumigation are usually reckoned in terms of the weight of the liquid or solid hydrogen cyanide per unit of space fumigated. This is in contrast to methods usually employed with some other liquid intoxicants (such as benzene), for which computations are based on parts of the gas formed on evaporation, having a vapor pressure equal to air under given conditions of temperature and barometric pressure. Relative toxicities are thus not always obvious in such terms as "parts per million."

The final estimate as to practical hazards entailed are indicated in the prefatory note by Sir George Newman, which says in part:

> If the process is skillfuly applied and due precautions are taken to prevent excessive absorption of gas, it would seem that no serious risk to health is likely to be involved. It must, however, be emphasized that indiscriminate treatment of food with hydrogen cyanide by inexperienced operators may be fraught with real danger to themselves and to the eventual consumer of the food.

This brochure is an excellent example of governmental research in health conservation, serving alike the interests of the commercial groups concerned and the public by frank recognition of the actuality of hazards in a much used process, and supplying limits within which safety is found to lie.

ARTIFICIAL SUNLIGHT COMBINING RADIATION FOR HEALTH WITH LIGHT FOR VISION. By M. Luckiesh, D.Sc., Director, Lighting Research Laboratory, Edison Lamp Works. Cloth. Price, $3.75. Pp. 254, with 73 illustrations. New York: D. Van Nostrand Company, Inc., 1930.

The director of a large industrial research laboratory has presented in this nonmathematical book an interesting and understandable thesis on the physical properties of light. It seems to be the most complete source of information on this subject now available. Concerned largely with the biologic and therapeutic values of light, the book endeavors to lay a foundation that will inaugurate a new era of dual-purpose lighting by combining radiant health giving energy with light for vision. It contains excellent diagrams, curves and tables that present an abundance of statistics. The author's point of emphasis is the health maintaining value of radiant energy in addition to lighting for vision. He presents this logically by devoting a chapter to the sun's beneficial effects and calling attention to the research of Nils Finsen and Auguste Rollier. This is undoubtedly one of the most extensive accumulations of facts on solar radiation that has been assembled. The author pleads for an orderly standardization of units for use in light therapy. This important step should receive careful attention. The medical profession needs a dosage unit and a method to measure it for administering light therapy. A correct and scientific method of arriving at a therapeutic unit is to standardize the physical unit. Evidently Dr. Luckiesh is following one of many leads to aid science in accomplishing this purpose. He points out that the erythema basis is a sound method of approach. The paragraphs devoted to the erythema producing, germicidal and curative properties of light are extensive. For those who are interested in ultraviolet measurement, much information is presented in the chapter on measurements of ultraviolet radiation. Various ultraviolet reflectors are described; the most efficient appear to be those finished with dull black paint. At first this fact seems odd, since visible light is reflected much better by shiny surfaces, such as silver, enamel and zinc oxide. If dual-purpose lighting becomes popular, revolutionary methods in the art of reflecting light must be developed. An excellent chapter on the ultraviolet transmitting mediums is compiled, and the author refers freely to many investigators and their research. The curative value of long wavelength radiations is discussed in a chapter on infra-red radiations. This valuable agent is important in healing body tissues and relieving pain, and the author notes that infra-red, or heat, radiations have never been exploited as extensively as the ultraviolet. Although this book is a veiled advertisement for the General Electric S-1 Sunlamp, physicians with an investigative turn of mind and desirous of the truth will find the information surprisingly unbiased. The book fills an urgent need in the general practice of light therapy. Further scientific information is needed to warrant the extra expenditure for installing dual-purpose lighting. Future evidence may substantiate Dr. Luckiesh's propaganda in laying this foundation. It is doubted, however, that the sun will ever be seriously challenged.

LES LOIS CARDINALES DE LA DISTRIBUTION ET DU METABOLISME DE L'ALCOOL ETHYLIQUE DANS L'ORGANISME HUMAIN. Par Erik M. P. Widmark. De l'Institut de chimie médicale de l'Université de Lund. Paper. Pp. 57, with 43 illustrations. Lund: C. W. K. Gleerup, 1930.

The alcohol question has occupied the minds of men since the dawn of history. The writers of the old and the new testament were impressed with its social importance. Social aspects in our day are no less important than they were in those days, but the political aspect has overwhelmed the scientific aspects, on which all sound legislature should rest. It is even more incomprehensible that those who have the necessary scientific training to evaluate properly the use and the disuse of the article have been carried away with fury created by politicians and self-appointed reformers. Because of this importance, many scientific studies have been made on the fate of alcohol in the human economy. That in limited amounts it may serve as a source of energy is not disputed even by the most rabid opponents to its social use. Its disuses are too well known. The thought behind the present study by Professor Widmark was to throw light on the frequently observed phenomenon that different individuals show different degrees of intoxication by ingestion of the same amount of alcohol. He starts out to answer two general questions: 1. In what measure can the same amount of alcohol result in a variable concentration of alcohol in the blood and consequently in tissues sensitive to it? 2. Can the same concentration of alcohol produce a different degree of intoxication within different individuals? The pamphlet contains an account of an address delivered in April, 1930, and presents the results of an attempt to evaluate each of the special factors such as weight and condition of the body and metabolism factor, the concentration in the blood, after ingestion and so on by a series of apparently carefully controlled experiments. The author arrives at a general formula of possible interest in forensic medicine by which the amount of alcohol ingested can be determined within reasonable limits some time after ingestion, if only two known factors are at hand—body weight and concentration of the blood. The importance of this, as Professor Widmark sees it, is a measure of the degree of intoxication. This investigation represents an important addition to an already large literature on alcohol and may profitably be read by students of the scientific aspects of the alcohol question.

THE AFRICAN REPUBLIC OF LIBERIA AND THE BELGIAN CONGO BASED ON THE OBSERVATIONS MADE AND MATERIAL COLLECTED DURING THE HARVARD AFRICAN EXPEDITION, 1926-1927. Edited by Richard P. Strong. Volumes I and II. Cloth. Price, $15 per set. Pp. 1064, with illustrations. Cambridge: Harvard University Press, 1930.

Harvard University sent an expedition into Africa in 1926 and 1927 to make a biologic and medical survey of Liberia. The expedition was under the direction of Dr. Richard P. Strong, professor of tropical medicine, with whom seven other professors and assistants were associated. A survey of diseases present in the interior of Liberia had not previously been made. In these two volumes is the story of the travels of the expedition back and forth across Liberia and reports of the diseases found that affect the inhabitants, animals and plants. There are many instructive pictures of diseases, some colored plates of microscopic observations, pictures showing the circumstances under which these people live, and maps illustrating the routes the expedition followed. Aside from their value to the sciences, these volumes will entertain and instruct any one interested in distant places.

ACCIDENTES OCULARES DEL TRABAJO EN EL URUGUAY. Por el Doctor Enrique Mendez, Médico Oculista del Banco de Seguros del Estado. Congreso Médico del Centenario, Seccional de Oftalmologia. Paper. Pp. 35. Montevideo: Congreso Médico del Centenario, 1930.

In Uruguay in the years 1914 to 1929, 6,228 ocular injuries were recorded. Almost two thirds of these were caused by impaction of foreign bodies, while contusions and burns hold second and third places. In more recent years these traumatic lesions have been more frequent and it is interesting to note that the left eye is more often affected. A satisfactory explanation of this fact is not given. The author warns against malingerers and concludes his well formulated statistical report with the suggestion that efficient prophylaxis be practiced to protect workmen.

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DISEASES OF THE GENITO-URINARY SYSTEM IN INFANCY AND CHILDHOOD. By Henry F. Helmholz, M.D., Professor of Pediatrics, University of Minnesota (The Mayo Foundation), and Samuel Amberg, M.D., Associate Professor of Pediatrics, University of Minnesota (The Mayo Foundation). Supervising editor Royal Storrs Haynes, Ph.B., M.D., Clinical Professor of Diseases of Children, College of Physicians and Surgeons Columbia University. Volume XIX, Clinical Pediatrics. Cloth. Price, $85 per set of 21 volumes (sold only in set). Pp. 239, with 27 illustrations. New York: D. Appleton & Company, 1930.

Writers who grapple with renal disease display literary heroism. The classification is becoming a matter of keener and keener controversy in light of the recent advances in blood chemistry, renal function tests and data concerning edema. When urinary disturbances such as enuresis, diagnostic considerations and the details of genito-urinary involvement are added, the writers of a monograph have ample reason to be daunted. The authors of this volume have simplified the subject as only authorities may. Beginning with chapters on embryology, anatomy, physiology and diagnostic methods, they proceed with urinary disorders, renal disease, pyogenic infections of the urinary tract and diseases of the kidney and bladder, concluding with considerations of the anomalies and diseases of the male and female generative tracts. Where embryologic diagrams clarify the abstract, embryologic diagrams are offered. Where roentgenograms are diagnostic, such reproductions are displayed. Where diets are pertinent, detailed diets are tabulated. There is an unmistakable note of rich personal experience both in the text and in the typical text cases described. This book was apparently slightly too early for experience with the urinary dyes, but the omission has not proved an insurmountable handicap to the authors with their facilities and determination to diagnose. It would be inaccurate to state that volumes of information have been compressed within these few pages. There is never the impression of a hasty short cut or a view of high lights, compend fashion. Rather one appreciates that the vast literature has been painstakingly sifted so that only seasoned facts are included. Keen discrimination throws searchlights on the essential, whether the spectacular nephrosis or the garden variety of hemorrhagic nephritis. The work has the analytic, authoritative lecture note of a professor of the fundamental sciences speaking clinically.

SOZIALE KRANKHEIT UND SOZIALE GESUNDUNG. Von Dr. Viktor v. Weizsäcker, o. Professor an der Universitat Heidelberg. Paper. Price, 2.80 marks. Pp. 52. Berlin: Julius Springer, 1930.

This pamphlet was written to clear up the relation between the physician and the individual whose working capacity is really or supposedly impaired. This is important in Germany, where thirteen million working people rely on subvention furnished by public money. Six million of these must be professionally examined in order to determine the correctness and amount of their claims. The author discusses the question whether there is a system of pathologic recognition that enables the examiner to determine satisfactorily the earning faculty of the individual and he denies such a possibility. The pathologic recognition determines the nature of the disease but not the quality of the remaining health and the working capacity of the residual functions. Great stress is laid on the investigation and improvement of the mental condition of the patient. At present it is impossible to draw from the status of morbidity definite conclusions for the determination of the functional capacity of the individual concerned. It will be the task of the physicians to develop methods for the gaging of the working capabilities. As a basis for this endeavor, the question of true incapability for work, the mental indisposition toward labor, and the lack of occupation though the willingness to work must be considered. This pamphlet will be of great interest to everybody who has to deal with industrial compensation work.

MOTHER ALPHONSA: ROSE HAWTHORNE LATHROP. By James J. Walsh, M.D., Ph.D., Litt.D. Cloth. Price, $2.25. Pp. 275, with illustrations. New York: Macmillan Company, 1930.

In 1894 the younger daughter of Nathaniel Hawthorne, Rose Hawthorne Lathrop, located in a three-room flat on the lower east side of New York in order to help the poor who were suffering from incurable cancer. She took a few patients to live in the apartment with her, received others into her home in order to dress their lesions, and visited many more in their own homes. Such was the beginning of a work that filled the remainder of her life. This book is the story of her service. Mrs. Lathrop's hope that her work would extend to other cities is being partially realized at present with the opening in Philadelphia of a similar home. The author writes of Mother Alphonsa from knowledge gained by association with her in this work. He also includes parts of Mother Alphonsa's diary and letters. Nathaniel Hawthorne, her father, visited in this home, as did other members of that noted family. In these pages is a charming description of Nathaniel Hawthorne's early home life, during the trying years before he had written anything notable. The devotion of the Hawthornes reminds one of the Brownings of England. It was natural, therefore, that their daughter should devote her life to the service of others.

DIE VISCEROGRAPHISCHE METHODE: MENSCHLICHE NORMALE UND PATHOLOGISCHE PHYSIOLOGIE UND PHARMAKODYNAMIE DER MOTILITÄT DES OESOPHAGUS, DES MAGENS, DES DARMES UND DER BLASE. Von D. Danielopolu, Professor der medizinischen Klinik an der Universität und Direktor des medizinisch-klinischen Institutes B im Filantropia-Spital in Bukarest. Paper. Price, 7.20 marks. Pp. 166, with 130 illustrations. Berlin: S. Karger, 1930.

This is a compilation of work published during the last ten years by the author and his collaborators. It consists of physiologic and pharmacologic experiments on normal and diseased men. In these experiments, from one to three recording balloons were passed into the esophagus, stomach, small intestine, colon or bladder. Danielopolu believes that this type of work is of great value to the clinician, but in the rather verbose discussion of the experiments he does not present much to support the statement. He feels that his experiments are of great value also in showing how different the pharmacologic reactions of the digestive tract are in man and in laboratory animals. Actually, the kymographic records show that drugs act much the same in animals and in man. The striking fact which the clinician should note is that most of the actions of drugs were fleeting. The physician, when he gives a drug, hopes to secure an action that will last several hours; Danielopolu's records show that the effect usually lasts seconds or minutes; it is often a mixture of inhibition and stimulation, and this mixture varies with the dosage used. The book really constitutes a valuable and unusual contribution to the knowledge of the motor functions of the digestive tract. There is much of interest about the behavior of the esophagus, stomach and bowel. It is interesting to see that atropine and physostigmine appear to sensitize the gastric musculature so that it will react more markedly to psychic stimuli. The esophagus in cases of cardiospasm appears to contract peculiarly. Large doses of ephedrine appear to quiet the intestine for several minutes. Pilocarpine produced a temporary increase of gastric motility followed by a period of quiet. The effect of epinephrine lasted only a few seconds. Small doses of atropine seemed to increase the activity of the stomach, but large ones inhibited it. The book should be studied by every one who is interested in the research side of gastro-enterology.

OPERATIVE GYNECOLOGY. By Harry Sturgeon Crossen, M.D., F.A.C.S., Professor of Clinical Gynecology, Washington University School of Medicine, and Robert James Crossen, M.D., Instructor in Clinical Gynecology and Obstetrics, Washington University School of Medicine. Fourth edition. Cloth. Price, $15. Pp. 1078, with 1248 illustrations. St. Louis: C. V. Mosby Company, 1930.

The present edition of this popular book, which was revised with the assistance of the younger Crossen, is much larger than any of the previous editions. The last edition had 677 pages and 887 illustrations. The general plan of the book is essentially the same. The new illustrations are just as instructive as the old ones and the increased space devoted to descriptions of operations is commendable. However, it seems unnecessary to devote eighty pages and ninety-five illustrations to retrodisplacement of the uterus, for less and less importance is being attached to uncomplicated retroversion of the uterus. Whereas the 1925 edition did not cover such important matters as anesthesia and intestinal surgery which may be associated with pelvic operations, the present volume contains instructive and beautifully illustrated chapters on these subjects. The detailed description and illustrations of the use of local anesthesia are especially praiseworthy. Special extensive chapters are now devoted to genital fistulas and to the urinary tract in

relation to pelvic surgery. There is also a thorough discussion of radiation therapy. The present volume, like its predecessors, will undoubtedly continue to be a popular book; but $15 is rather a high price for a single volume.

Medicolegal

A Nurse as Employee or Independent Contractor

(Renouf v. New York Cent. R. Co. (N. Y.), 240 N. Y. S. 720)

A surgeon for the New York Central Railroad Company sent an injured employee of the company to a private hospital, instructing the hospital to assign private nurses to the patient. It was conceded that in doing so he was acting within the scope of his authority as an agent for the railroad. The claimant was a special nurse so assigned. Her orders came from the physician who employed her on behalf of the railroad company. The company paid her through the hospital as its agent. In the course of her employment she pricked her finger, infection followed, and the finger had to be amputated. From an award of compensation, against the railroad company, the company appealed to the Supreme Court of New York, Appellate Division, Third Department.

Counsel for the insurance carrier evidently contended that a nurse, like a physician, is engaged in an independent calling and that neither can become the servant of another. This argument, said the Supreme Court, is fallacious. Ordinarily the relation of master and servant does not exist between a person engaged in the practice of a profession and a person who engages him for a limited purpose or transaction. There is no reason, however, why that relation cannot be created. Frequently, lawyers, doctors and other men of skill are employed at regular salaries for definite periods. Such contracts of employment create the relation of master and servant. *Greenberg* v. *Jerome H. Remick & Co.*, 230 N. Y. 70, 75, 129 N. E. 211. The relation may be created by contract, either express or implied. *Brown* v. *St. Vincent's Hospital*, 222 App. Div. 402, 226 N. Y. S. 317. Whether or not the relation exists may be tested by the right of the employer to control or direct the work of the employee, the payment of wages, and the right to hire and discharge. In the present case, it was conceded that the railroad company gave its physician authority to select employees, whose salaries the company paid. The nurse to whom compensation was awarded was so employed and paid. She was subject to the orders of the physician and could be discharged by him. She was the employee of the railroad company just the same as though she had been employed in the company's own emergency hospital. There is no difference between this case and one wherein a superintendent is authorized to employ an expert mechanic for a limited time to render some special service in repairing a locomotive. The award was accordingly affirmed.

Gonorrheal Infection of Eyes an Accident

(McFarland v. Massachusetts Bonding & Ins. Co. (Tenn.), 26 S. W. (2d) 159)

The plaintiff sued the defendant insurance company on a policy insuring him "against disability resulting directly, and independently of all other causes, from bodily injuries sustained through external, violent and accidental means." It was stipulated by the parties that an oculist, whom the plaintiff consulted, found gonococci in his eyes; that the plaintiff did not know the exact time and place when the gonococci entered, and did not know of their presence until inflammation set in; that they entered without his knowledge or consent; that neither when inflammation set in nor at any other time was the plaintiff afflicted with gonorrhea, and that until his eyes became inflamed he had never knowingly had gonococci in his body. It was further stipulated that gonococci could be introduced into the eye by rubbing with the finger or hand or with an infected cloth. In the trial court, judgment was entered for the plaintiff, and the insurer appealed to the Supreme Court of Tennessee.

The insurer contended that the unexplained presence of gonococci in the plaintiff's eyes did not justify the conclusion of the trial court that the injury was the result of external, violent and accidental means. Within the terms of the policy, the insurer contended, the *means* through which the injury is effected must be accidental, not merely the injury itself. If a condition is produced by a voluntary act, which is executed as intended but results in unknown, unforeseen, unexpected and unanticipated consequences, it is not, argued the insurer, sustained through "accidental means," within the terms of the policy. Under this contention, if the eye was rubbed with the finger, hand or a glove, infected with gonococci without the knowledge of the insured, the infection would be due to a voluntary act, executed as intended, and would not be accidental. On the other hand, if on the street the wind blew the gonococci into the eyes so that they became impacted and embedded, the means of getting the gonococci into the eyes would be accidental, and the injury therefore accidental.

The mind yields reluctantly, said the Supreme Court, to the conclusion that pathogenic bacteria are autoprojectiles, capable of acts of violence that produce, not disease, but accidental injury. That conclusion, however, seemed to the court to be well supported by authorities cited in the opinion rendered when this case was before the court on a previous occasion; *McFarland* v. *Massachusetts Bonding & Ins. Co.*, 157 Tenn. 254, 8 S. W. (2d) 369, 370. The contention of the insurer presents a dilemma: If it is an accident when the germ comes from space and strikes the victim, what is it when the germ crawls from the hand or an object in the hand and digs in? The Supreme Court was unable to agree with the contention of the insurer that the latter method of infection would not be an accident within the meaning of the policy. When the injury is proved and shown to have been through external and violent means, said the Supreme Court, citing from its previous opinion, and it appears that it was not intentionally inflicted, the requirements of the policy are sufficiently met, unless it appears that it was the natural result of some voluntary act of the insured.

The judgment of the court below, in favor of the insured, was affirmed.

Evidence: Statements by Patient to Physician, When Admissible.—A physician may testify as to statements made by a patient relating to the patient's condition at the time of an examination or treatment. The opinion of a physician, however, based on a history of events or circumstances as to how an injury occurred, related to him by a patient, is inadmissible in evidence.—*Mendenhall v. Springfield Traction Co. (Mo.), 20 S. W. (2d) 50.*

Society Proceedings

COMING MEETINGS

American Association for the Study of Goiter, Kansas City, Mo., April 7-9. Dr. J. R. Yung, 670 Cherry Street, Terre Haute, Ind., Secretary.

American Association of Anatomists, Chicago, April 2-4. Dr. George W. Corner, University of Rochester School of Medicine, Rochester, N. Y., Secretary.

American Association of Pathologists and Bacteriologists, Cleveland, April 2-3. Dr. H. T. Karsner, 2085 Adelbert Road, Cleveland, Sec'y.

American College of Physicians, Baltimore, March 23-27. Mr. E. R. Loveland, 133 South 36th Street, Philadelphia, Executive Secretary.

American Orthopedic Association, Memphis, Tennessee, April 13-18. Dr. DeForest P. Willard, 1916 Spruce Street, Philadelphia, Secretary.

American Pediatric Society, Edgewater Park, Mississippi, April 15-17. Dr. H. C. Carpenter, 1805 Spruce Street, Philadelphia, Secretary.

American Physiological Society, Montreal, April 8-11. Dr. Arno B. Luckhardt, 5216 Greenwood Avenue, Chicago, Secretary.

American Society for Experimental Pathology, Montreal, April 8-11. Dr. C. Phillip Miller, Jr., University of Chicago Department of Medicine, Chicago, Secretary.

American Society for Pharmacology and Experimental Therapeutics, Montreal, April 8-11. Dr. E. D. Brown, University of Minnesota Medical School, Minneapolis, Secretary.

American Society of Biological Chemistry, Montreal, April 8-11. Dr. H. B. Lewis, University of Michigan Medical School, Ann Arbor, Mich., Secretary.

Federation of American Societies for Experimental Biology, Montreal, April 8-11. Dr. H. B. Lewis, University of Michigan Medical School, Ann Arbor, Mich., Secretary.

Louisiana State Medical Society, New Orleans, April 14-16. Dr. P. T. Talbot, 1430 Tulane Avenue, New Orleans, Secretary.

Pacific Coast Surgical Association, Victoria, British Columbia, February 27-28. Dr. E. L. Gilcreest, 384 Post Street, San Francisco, Secretary.

Southeastern Surgical Congress, Atlanta, Ga., March 9-10. Dr. B. T. Beasley, 45 Edgewood Ave., Atlanta, Ga., Secretary.

Tennessee State Medical Association, Knoxville, April 14-16. Dr. H. H. Shoulders, 706 Church Street, Nashville, Secretary.

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Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

46: 355-500 (Nov. 15) 1930

Blood Formation in Cyclostomes. H. E. Jordan and C. C. Speidel, Charlottesville, Va.—p. 355.

Embryology of Circulation in Fishes: I. Veins of Abdominal Wall. E. M. Shearer, Princeton, N. J.—p. 393.

Id. II. Development of Arteries. E. M. Shearer, Princeton, N. J.—p. 427.

*Basophilic Cells in Posterior Lobe of Human Hypophysis. A. T. Rasmussen, Minneapolis.—p. 461.

Sexual Cycle in Birds: Normal Regressive Changes in Testis of European Starling (Sturnus Vulgaris) from May to November. T. H. Bissonnette, Hartford, Conn.—p. 477.

Basophilic Cells in Posterior Lobe of Human Hypophysis.—A histologic study of fresh normal adult human hypophyses has been made by Rasmussen for the purpose of throwing further light on the origin of the basophilic cells that invade the posterior lobe. It appears that pars intermedia cells, both in the main stratum which forms the posterior wall of the cleft and in the strands and tubules which grow backward from it, may become strongly basophilic and assume the general characteristics of basophilic cells of the anterior lobe. This transition does not involve an acidophilic stage. Only an occasional isolated acidophilic cell is found in the pars intermedia. This suggests that the basophilic cells are not derived from the acidophilic type, at least under certain conditions. If these basophilic cells are of the same type as the basophils found in the anterior lobe, the clear (or slightly basophilic) cells of the pars intermedia might be looked on as undeveloped cells almost exclusively of the basophilic type. While the possibility of migration of cells from the anterior lobe into the posterior lobe is not denied, it is certainly evident that abundant cells from the pars intermedia may become strongly basophilic and in some instances, at least, account for the great number of basophilic cells that invade the nervous lobe.

American J. Roentgenol. & Rad. Therapy, New York

24: 605-728 (Dec.) 1930

Development of Modern Roentgen-Ray Generating Apparatus. W. D. Coolidge, Schenectady, N. Y.—p. 605.

Symphysis Pubis in Roentgen Examination of Sacro-Iliac Joint. W. E. Chamberlain, San Francisco.—p. 621.

Effect of Phrenicectomy on Pulmonary Cavitation. W. I. Werner, Pontiac, Mich., and E. J. O'Brien, Detroit.—p. 626.

*Roentgen Diagnosis of Chronic Appendicitis. H. J. Walton and S. Weinstein, Baltimore.—p. 631.

Roentgen Physiological Studies on Gallbladder: Lipiodol and Brominol Light on Dog. A. G. Rewbridge and B. Halpert, Chicago.—p. 634.

*Tissue Reaction to Radiation Using Segment of Growing Mouse Tail as Biological Indicator: I. Methods and General Reactions. H. J. Bagg and C. R. Halter, New York.—p. 640.

*Blood Changes in Leukemias and Lymphomas and Bearing on Roentgen Therapy. R. Isaacs, Ann Arbor, Mich.—p. 648.

*Roentgen Treatment of Metastasis to Vertebrae and Bones of Pelvis from Carcinoma of Breast. E. T. Leddy, Rochester, Minn.—p. 657.

*Deep Roentgen Ray Therapy of Mammary Carcinoma. II. Five Year Results. W. A. Evans and T. Leucutia, Detroit.—p. 673.

Traumatic Rupture of Diaphragm: Case. L. F. Wheatley, New Haven, Conn.—p. 679.

Diverticulum of Duodenum Perforated into Pancreas: Case.—p. 684.

Roentgen Diagnosis of Chronic Appendicitis.—In a routine study made by Walton and Weinstein of 1,000 consecutive gastro-intestinal examinations, there was roentgen evidence of a pathologic appendix in 152 instances, or 15.2 per cent. This diagnosis was confirmed either clinically or at operation in 133 cases, or 87.5 per cent. The incidence of appendicitis was noted to be greatest between the ages of 20 and 50 years.

Tissue Reaction to Irradiation: Segment of Growing Mouse Tail as Biologic Indicator.—Bagg and Halter assert that a 5 to 7 mm. segment of the tail of a young mouse (approximately 9 to 12 c.mm. of tissue) can be used to advantage as a measure of the biologic effects of irradiation. The degree of the effect of irradiation may be measured in terms of disturbance of epilation, in retardation in the growth of the tail, or in the spontaneous amputation reaction.

Blood Changes in Leukemias and Lymphomas and Bearing on Roentgen Therapy.—Isaacs asserts that roentgen irradiation stimulates primitive myeloblasts and lymphoblasts to rapid reproduction. Myelocytes and small lymphocytes are stimulated to finish their life history and they then die or are excreted. The latent period between the exposure to irradiation and the elimination of the leukocytes represents the period of maturation and development of the individual cells to senility. The matured cells are excreted into the gastro-intestinal tract (polymorphonuclear cells into the mouth, lymphocytes into the intestine). Very rapid excretion may result in a decrease in the number of cells in the peripheral circulation (leukopenia), giving the false impression of an aplastic bone marrow. Anemia may mean crowding out of red blood cell tissue by foreign cells or it may mean actual aplasia of the bone marrow. Anemia, then, as well as leukopenia, may not necessarily be a contraindication to roentgen therapy. As the peripheral blood count does not always give a clue to the state of the blood-forming organs, several other factors must be taken into account in considering treatment (rate of cell destruction, type of the cells, basal metabolic rate and associated symptoms and previous response to roentgen irradiation).

Roentgen Treatment of Metastasis from Carcinoma of Breast.—Metastasis from carcinoma of the breast reaches the pelvic and vertebral bones, probably by a combination of aberrant and reflux spreads through the lymphatics, and is often accompanied by an inflammatory reaction of noninfectious origin. The most common symptom of such lesions is pain in the right sciatic nerve. The distribution and type of metastasis in the group studied by Leddy bore no relationship to the primary tumor. Treatment by roentgen rays by an effect on both the inflammatory and the malignant cells in the metastatic growths produces analgesia, often complete and of months' duration, and is the best method of palliating a hopeless disease.

High Voltage Roentgen Therapy of Mammary Carcinoma.—Five years of experience with many cases has convinced Evans and Leucutia that roentgen therapy, in its short wavelength application, is of considerable aid in treatment of operable mammary carcinoma as an auxiliary to surgical procedures. Whereas, in the cases without glandular involvement, the addition of irradiation does not seem noticably to increase the five-year results above those of surgery alone, assuming, of course, that all the diseased tissues were removed, in the carcinomas that had already spread to the axillary or the high thoracic lymph nodes the five-year results are nearly doubled. The best method of procedure is a combination of radical surgery with a thorough systematic irradiation of the entire anterior thorax, axilla and neck on the diseased side. In the inoperable or recurrent mammary carcinomas, roentgen therapy produces prolongation of life if the lesion is localized to the adjacent lymph nodes or anterior thorax and alleviates the symptoms if the carcinoma is already generalized.

Archives of Internal Medicine, Chicago

46: 901-1071 (Dec.) 1930

*Differentiation and Significance of Certain Ophthalmoscopic Pictures in Hypertensive Diseases. A. M. Fishberg and B. S. Oppenheimer, New York.—p. 901.

*Does Climate Affect Human Conception Rate? C. A. Mills and F. A. Senior, Cincinnati.—p. 921.

Vital Capacity in College Women: I. Standards for Normal Vital Capacity in College Women. A. H. Turner, South Hadley, Mass.—p. 930.

Id.: II. Study of Students with High and Low Vital Capacity. A. H. Turner, South Hadley, Mass.—p. 938.

*Thyrotoxicosis Following Subtotal Thyroidectomy for Exophthalmic Goiter. W. O. Thompson, Chicago, A. E. Morris, Boston, and P. K. Thompson, Chicago.—p. 946.

*Neutral Red Test in Pernicious Anemia. S. J. Cohen, M. J. Matzner and I. Gray, Brooklyn.—p. 979.

*Diagnostic Value of Sugar Tolerance Curve in Endocrinopathies. B. Y. Glassberg, St. Louis.—p. 984.

*Reflex Influence of Colon, Appendix and Gallbladder on Stomach. F. M. Smith and G. H. Miller, Iowa City.—p. 988.
Alkaline Tide as a Method of Studying Gastric Acidity. R. S. Hubbard, Clifton Springs, N. Y.—p. 994.
Metabolism of Obesity: VIII. Basal Metabolism and Insensible Perspiration During a Period of Reducing Weight. C. C. Wang, S. Strouse and M. Andersen, Chicago.—p. 1002.
*Origin of Urobilinogen. I. M. Rabinowitch, Montreal.—p. 1014.
Correlation of Widal's Postdigestive Leukopenia as Test for Liver Function with the Normal Rhythm of the Leukocytes. M. Goodman and J. E. Connery, New York.—p. 1018.
*Sphenopalatine Phenomena: Present Status of Knowledge. H. Byrd and W. Byrd, Detroit.—p. 1026.
*Serum Treatment for Chronic Ulcerative Colitis. J. A. Bargen, E. C. Rosenow and G. F. C. Fasting, Rochester, Minn.—p. 1039.
Influence of Auricular Contraction on First Heart Sound and Radial Pulse. C. C. Wolferth and A. Margolies, Philadelphia.—p. 1048.

Significance of Certain Ophthalmoscopic Pictures in Hypertensive Diseases.—In 274 cases of hypertensive and renal diseases the ophthalmoscopic observations were studied by Fishberg and Oppenheimer in relation to the clinical picture; in thirty-nine of the cases, postmortem observations also were made. The concept of albuminuric retinitis includes three distinct pathogenic entities, which can most often be differentiated with the ophthalmoscope; (*a*) arteriosclerotic retinopathy, (*b*) malignant hypertensive neuroretinitis and (*c*) choked disk due to increased intracranial tension from edema of the brain. The ophthalmoscopic characteristics of these three types of retinal changes are described, and their occurrence and prognostic significance in the individual types of hypertensive disease investigated. In all of the ten cases of essential hypertension with malignant hypertensive neuroretinitis in which the patients came to necropsy, necrosis of the renal arterioles was present. On the other hand, necrosis of the renal arterioles was absent in eleven instances of essential hypertension without malignant hypertensive neuroretinitis that were studied at necropsy. Instances are described of malignant hypertensive neuroretinitis in a patient with arterial hypertension due to suprarenal tumor and of arteriosclerotic retinopathy accompanying hypertension resulting from amyloid contracted kidney.

Does Climate Affect the Human Conception Rate?—The birth statistics of different cities, states and countries were analyzed by Mills and Senior and it was found that human fertility, as indicated by the conception rate, is highest in any given population at a temperature of about 65 F., and that it is reduced during the low temperatures of the northern winter and by mean summer temperatures above 70 F. The summer depression is roughly proportional to the rise in the mean temperature above 70 F. These changes in conception rate are not dependent on changes in the marriage rate or sexual activity of the population and must therefore represent actual variations in human fertility.

Thyrotoxicosis Following Subtotal Thyroidectomy for Exophthalmic Goiter.—Of 190 cases of exophthalmic goiter in which the patients underwent subtotal thyroidectomy during the years 1923 to 1928 at the Massachusetts General Hospital and which were followed for from three months to nearly six years after operation with frequent physical examinations and tests of basal metabolism, Thompson et al. found that 37, or 19.5 per cent, showed definite clinical evidence of postoperative thyrotoxicosis with basal metabolic rates ranging from plus 19 to plus 63 per cent without medication. In only two instances was there evidence that it was a true recurrence rather than a persistence of the disease. In three cases, however, regeneration of thyroid tissue was observed in association with a persistence. The postoperative thyrotoxicosis lasted from about two to four years in the three cases in which it finally disappeared without further surgical measures or roentgen treatment. It lasted for at least one year in nineteen others and at least from four to six years in four others. The degree of thyrotoxicosis was usually not severe; with a single exception, it was less than before operation. In eighteen cases the basal metabolism could be held at a constant level for from months to years by the prolonged administration of iodine. In ten cases in which iodine was ineffective, or eventually became so, or in which it did not abolish the thyrotoxicosis completely enough, reoperation was recommended. In seven cases roentgen therapy was tried, with fair results in five instances. From a preoperative standpoint there was no definite distinguishing mark between those patients who had thyrotoxicosis following operation and those who did not. There was a rough parallelism between the amount of thyroid tissue palpable after operation and the degree of thyrotoxicosis. The surgeons who did the most radical thyroidectomies (synonymous in general with those who had the most experience) had definitely a smaller percentage of cases of postoperative thyrotoxicosis than did the surgeons who had less experience and who usually did less extensive thyroidectomies. In the cases of persistence of the disease, the authors did not note any relapse except those caused by the omission of iodine, nor any remissions except those caused by its administration and the disappearance of the disease.

Neutral Red Test in Pernicious Anemia.—During the past year Cohen et al. were able to demonstrate the presence of injected neutral red in the gastric extractions of three patients who had pernicious anemia. They were unable to state whether the neutral red recovered in the gastric extractions of these patients was actually secreted by the gastric glands or whether it was regurgitated from the duodenum into the stomach. The possibility that the neutral red recovered in these cases was of gastric origin cannot be excluded. A simple and rapid method for the detection of neutral red in the gastric content is described.

Diagnostic Value of Sugar Tolerance Curve in Endocrinopathies.—As the result of the analysis of 300 sugar tolerance curves, plotted by the same technician, and being the same method, Glassberg feels that the sugar tolerance curve as it has been used as a routine up to this time does not yield information of any diagnostic value in the differentiation of normal and endocrinopathic conditions. Analysis of curves repeated within a few days of the first routine sugar tolerance test shows no uniformity in the results, thus precluding further a diagnostic interpretation of the curve obtained. Careful determination of the capillary (arterial) and venous blood sugar after the administration of a standard dextrose meal with and without the ingestion of water shows no uniform deviation in the form of the curve. Such an analysis did show that the intake of fluid alone produced a tremendous but not a constant deviation in the curve.

Reflex Influence of Colon, Appendix and Gallbladder on Stomach.—A reflex stimulation of the stomach from the colon, appendix and gallbladder was demonstrated by Smith and Miller. This effect, which was indicated by an increase in the tone, particularly of the pyloric portion, and by an increase in the depth of the peristaltic waves, was completely abolished by atropine. In this study, however, all operative procedures incident to the experiment were completed prior to the registration of the control curve, and thus the possibility of an irritation from the peritoneum producing the results was eliminated. These observations on patients are in line with the experimental studies on the dog and constitute a further demonstration of the reflex connection between the colon and the stomach.

Origin of Urobilinogen.—Rabinowitch records a clinical experiment which appears to demonstrate that urobilinogen may be found in the body not only outside the intestinal tract but also in the absence of bacteria as reducing agents.

Sphenopalatine Phenomena.—The Byrds bring together the more important observations that have accumulated in the literature on the sphenopalatine ganglion during the past twenty-five years and the more important observations that have been made during eight years of original work on this subject. The original work includes more than 2,000 cases and more than 10,000 instances, counting multiples and repetitions, of remote dysfunctions. Dysfunctions numbering more than three score have been relieved by anesthetization of the sphenopalatine ganglions, including afflictions as intractable as progressive deafness, as painful as migraine and iritis, and as grave as glaucoma and angina pectoris. Anesthetization of the sphenopalatine ganglion does not give relief in all cases of any one malady but may be confidently expected to do so in at least one fifth of all cases of the several serious afflictions mentioned, which is equal to relief in all cases of one of them. Besides this, anesthetization of the sphenopalatine ganglion gives relief in a certain percentage of cases of more than three score other dysfunctions, ranging from sciatica and pruritus to chorea and hypertension. Furthermore, while anesthetization of the sphenopalatine ganglion has not in itself accomplished the conquest of

any one disease, it has led directly to the therapeutic mastery of hay-fever, vasomotor rhinitis and polypoid degeneration. The authors believe that anesthetization of the sphenopalatine ganglion should be a routine procedure in every one of the dysfunctions enumerated, not only as a preliminary test but also a therapeutic measure in cases that show a positive reaction.

Serum Treatment for Chronic Ulcerative Colitis.—Bargen et al. assert that the fasting antibody solution obtained by precipitation in etherwater of the specific immune serum of chronic ulcerative colitis adds a new and valuable reagent to the armamentarium used in the treatment for bacterial chronic ulcerative colitis. It is particularly efficacious in the treatment of the more severe, subacute cases in which ileostomy was formerly the treatment of choice. This, in conjunction with the specific vaccine and other symptomatic agents, has greatly reduced the need of ileostomy. Operation, and primarily ileostomy, had become limited to complications, with very few exceptions. Fifty consecutive unselected cases received the antibody solution. All the patients are living more than a year after treatment. Twenty-four patients became free from symptoms; thirteen became from 75 to 90 per cent well, and six were improved at least 50 per cent. In only seven cases was there little if any change following the treatment. These seven cases were either severe, long-standing cases with extensive involvement of the colon and destruction, or there were serious complications, such as multiple polyps or strictures.

Archives of Surgery, Chicago

21: 1059-1430 (Dec.) 1930. Part II

Exploration of Pericardium and Decompression of Heart: Cases. W. Whittemore, Boston.—p. 1059.
*Pericardiectomy in Treatment of Pick Syndrome. C. S. Beck and R. A. Griswold, Cleveland.—p. 1064.
*Anterolateral Costectomy for Inadequate Collapse Following Posterior Extrapleural Thoracoplasty. C. A. Hedblom, Chicago.—p. 1114.
*Unfavorable Results of Phrenicectomy. F. B. Berry, New York.—p. 1125.
Mechanics of Collapse Therapy: Indications: Seven Hundred Cases. E. J. O'Brien, Detroit.—p. 1134.
Amebic Hepatic, Subphrenic and Pulmonary Abscesses. S. W. Harrington, Rochester, Minn.—p. 1146.
*Treatment for Penetrating Wounds of Pleural Cavity. D. S. Allen, St. Louis.—p. 1161.
*Etiology of Primary Bronchiectasis. D. T. Smith, Ray Brook, N. Y.—p. 1173.
Changes in Pulmonary Circulation Induced by Experimentally Produced Arteriovenous Fistula. J. H. Gibbon, Jr., and E. D. Churchill, Boston.—p. 1188.
Obstructive Pulmonary Atelectasis: Pathogenesis and Clinical Management. C. M. Van Allen, Peiping, China, and G. E. Lindskog, New Haven, Conn.—p. 1195.
Alveolar Gas Exchanges and Atelectasis: Mechanism of Gas Absorption in Bronchial Obstruction. P. N. Coryllos and G. L. Birnbaum, New York.—p. 1214.
*Air in Peritoneal Cavity: Effect on Position and Activity of Diaphragm. R. H. Overholt, Philadelphia.—p. 1282.
*Esophagus, Stomach and Heart Following Unilateral Phrenicectomy. H. C. Ballon, H. M. Wilson, J. J. Singer and E. A. Graham, St. Louis.—p. 1291.
Idiopathic Dilatation of Esophagus: Three Cases. F. A. C. Scrimger, Montreal.—p. 1315.
Hydatid Cysts of Lung. E. W. Phillips, Rochester, N. Y.—p. 1324.
Giant Sarcoma of Pleura; Two Cases. H. Lilienthal, New York.—p. 1379.
Intrathoracic Tumors: Fifteen Cases. T. C. Davison, Atlanta, Ga.—p. 1393.
Removal of Metastatic Carcinoma of Lung and Mediastinum. F. Torek, New York.—p. 1416.

Pericardiectomy in Treatment of Pick Syndrome.—A method for the production of this disorder experimentally is described by Beck and Griswold. It consists of the application of surgical solution of chlorinated soda in the pericardial cavity. The introduction of this solution results in generalized intrapericardial adhesions, thickening and fibrosis of the parietal pericardium and sometimes of the epicardium, ascites, fluid in the chest, enlargement of the liver, together with a fibrinous exudate on the liver, and sometimes pulmonary and subcutaneous edema. Observations on the experimental production of the Pick syndrome and its relief by pericardiectomy are presented. Observations on a clinical case of the Pick syndrome and its relief by pericardiectomy are given. A new exposure for the resection of the pericardium is presented.

Anterolateral Costectomy for Inadequate Collapse Following Posterior Extrapleural Thoracoplasty.—During the last four years Hedblom has performed this secondary anterolateral costectomy in twenty-six cases. The indications were persistent symptoms after the posterior thoracoplasty in eight cases, and recurrence of symptoms after a symptom-free period of four months in one and of ten months in another. There was an average grade of collapse of the thoracic wall from the posterior resection in all these cases. In three, regeneration of the ribs in the course of a multiple-stage operation prevented a satisfactory anatomic degree of collapse, and symptoms persisted in all. In two there were large unobliterated pulmonary cavities and persistent pneumothorax cavities. In eleven there were unobliterated empyema cavities secondary to active pulmonary tuberculosis. The parietal pleura overlying a residual cavity was resected later in all of these cases, with complete healing. In all these cases the anterolateral resection was tolerated as well as or better than the posterior resection. There was one death attributable to the operation from sepsis and one death from hemorrhage.

Unfavorable Results of Phrenicectomy.—Berry points out that there is a definite risk associated with crushing, resection or avulsion of the phrenic nerve. Fifty-seven cases have been reviewed in which phrenicectomy was most detrimental; twenty-six of the patients died as a result of the operation. These poor results have all been subsequent to properly performed operations without technical error. In view of the fact that there is such widespread advocacy of phrenicectomy as a harmless procedure in cases of pulmonary tuberculosis, bronchiectasis and even abscess of the lungs, Berry deems it wise to sound a word of caution and to call attention to the risk involved, slight though it is.

Treatment for Penetrating Wounds of Pleural Cavity.—Of the 162 cases reported by Allen, 47 were stab wounds and 115 gunshot wounds of the chest. Seven of the cases of stab wound proved fatal, but the cause of death was associated stab wounds of the abdomen in five cases and immediate hemorrhage from the heart in two cases. No patient died of injury to the lung. Hemothorax occurred in forty-two of the forty-seven cases. Two patients were operated on for ligation of the intercostal artery. The pleural cavity was not explored in either of these cases. In the 115 cases of gunshot wounds of the chest, only five patients died when the pleural cavity only was entered by the bullet. Two of these died immediately of hemorrhage, and three died later as a result of infection of the pleural cavity and injured lung. A total of 27 of the 115 patients died. Twenty-two of these cases were complicated by associated wounds of the abdomen, spinal cord and skull. It is evident that patients with ordinary bullet wounds of the chest usually survive unless there are associated wounds that cause death. One of these patients died from associated injury of the left ventricle. This was correctly diagnosed, and the mediastinum was immediately explored. The apex of the heart was found to have been shattered by the bullet to such an extent that it was impossible to check the hemorrhage. Bullets were removed from twenty-one of the 115 patients with gunshot wounds. In fifteen cases the bullets were embedded in the wall of the chest and could be removed without disturbance of the lung. In six cases the bullets were removed from the lung, but in no instance before two weeks had elapsed after the injury.

Etiology of Primary Bronchiectasis.—Smith states that the essential lesion in primary bronchiectasis is a focal necrosis of the elastic tissue in the bronchial wall due to infection with the fusospirochetal group of anaerobic organisms. This fusospirochetal group, comprising *Treponema macrodentium*, *Treponema microdentium*, *Spirochaeta vincenti*, *Spirochaeta buccalis*, fusiform bacilli, vibrios and cocci, are the same organisms that are found in pyorrhea alveolaris, Vincent's angina, pulmonary abscess and pulmonary gangrene. These organisms have been seen in the sputum of forty-nine of sixty patients proved to have bronchiectasis by the iodized oil test. Spirochetes and fusiform bacilli were found in sections of bronchial dilatations after staining by Levaditi's method in eight of twelve cases that came to necropsy. Fusiform bacilli were demonstrated in pathologic sections from four of an additional six cases of bronchiectasis after staining by Goodpasture's method. In animal experiments, fusospirochetal material from varied sources (pyorrhea alveolaris, fusospirochetal bronchitis and pulmonary abscess) caused bronchiectasis as well as pulmonary abscess and pulmonary

gangrene in rabbits. Control inoculations with pure cultures of (1) *Staphylococcus aureus*, (2) aerobic hemolytic streptococci, (3) anaerobic hemolytic streptococci, (4) green-producing streptococci, (5) anaerobic streptothrix, (6) Friedländer's bacilli and (7) influenza bacilli failed to produce damage to the bronchi. The fusospirochetal group of organisms is probably the cause of primary bronchiectasis.

Air in Peritoneal Cavity.—The position and mobility of the diaphragm were studied by Overholt in animals under sodium iso-amylethyl barbituric acid anesthesia. It was observed that following the introduction of air into the peritoneal cavity, either by injection or as a result of laparotomy, the diaphragm assumed a higher position and its excursions were definitely restricted.

Esophagus, Stomach and Heart Following Unilateral Phrenicectomy.—Twenty-seven patients were examined by Ballon et al. before and after phrenicectomy performed for pulmonary disease. Five patients complained of the following symptoms after phrenicectomy: one of eructations of gas, another of heart burn, a third of vomiting and two of dysphagia. In all but one instance these complaints were temporary. With but one exception, they followed left-sided phrenicectomy. A case of cardiospasm that apparently followed phrenicectomy is recorded. No marked mechanical displacement or shift of the upper third of the intrathoracic portion of the esophagus was noted after phrenicectomy. Slight respiratory deflection of the lowermost intrathoracic portion of the esophagus was noted. The electrocardiagram showed no marked changes following phrenicectomy. Four patients showed changes in the height of the complexes but not in their shape. Two followed left-sided and two followed right-sided phrenicectomy.

California and Western Medicine, San Francisco

33: 849-920 (Dec.) 1930

County Medical Society: Business Organization. L. C. Kinney, San Diego.—p. 849.
Angina and Other Precordial Pain: Differentiation. E. S. Kilgore, San Francisco.—p. 853.
*Glucose per Rectum: Evidence of Nonabsorbability. B. Smith, Los Angeles.—p. 857.
*Obstruction Following Gastro-Enterostomy: Mechanical Factors. F. R. Fairchild, Woodland.—p. 860.
Uroselectan: Reactions Accompanying Its Application. G. W. Hartman, San Francisco.—p. 867.
California State Mental Hygiene Survey. G. Myers, Los Angeles.—p. 872.
Treatment of Bone Tumors. E. I. Bartlett, San Francisco.—p. 877.
Differentiation Between Yaws and Syphilis. B. C.-N. O'Reilly, San Francisco.—p. 881.
*Treatment of Barbital Poisoning with Glucose. G. H. Sanderson, Stockton.—p. 887.
Cerebral Symptoms in Hypertension. W. H. Barrow, San Diego.—p. 887.

Dextrose by Rectum—Evidence of Nonabsorbability.—The administration of dextrose by rectum is a common therapeutic procedure, especially as a part of postoperative treatment and when oral feeding is difficult or impossible. The dextrose is usually given by the drip method or, at a faster rate, in the form of nutrient enemas. An isotonic solution of the sugar is usually given by drip, but with the dextrose enema the concentration of the sugar is often much higher. Little thought has been given to the effectiveness of such therapy, whatever has been the technic used or strength of dextrose solution injected. Smith asserts that the evidence that even a small part of the injected dextrose is absorbed is still inconclusive, whether an isotonic or hypertonic solution is used, since the reported increases in blood sugar and respiratory quotient are too slight to be definite proof of additional dextrose intake. Experimental data show that the blood sugar can be decreased by the instillation of dextrose in any strength of solution into the lower bowel. It is possible to bring about a degree of hyperglycemia in this way in the more sensitive patient that would be sufficient to lower both blood pressure and blood volume or disturb the acid-base balance similar to that seen in overdosage of insulin in diabetes, with a sharp shift to an alkalosis. Such circulatory disturbance, without an associated chemical imbalance, may complicate and prolong postoperative convalescence.

Obstruction Following Gastro-Enterostomy.—Fairchild presents a brief review of the steps in the evolution of gastro-enterostomy with the observation that postoperative obstruction has not been uniformly eliminated by any procedure. He asks whether the failure always to avoid postoperative mechanical obstruction may not be due to the application of a too nearly standardized technic to all individuals without giving consideration to their great variations in anatomic structure. He stresses the fact that, before operation, the relative positions of the structures concerned in a gastro-enterostomy are not fixed. After operation they are fixed and, unless the mechanics of the situation are so worked out that they will be fixed in a relatively normal position without stress or angulation, dysfunction will result. Suggestions are made as to the modifications necessary in the length of the afferent loop, the position of the opening in the transverse mesocolon and the position and character of the stoma made necessary by the anatomic variations of individuals, to secure a relatively normal relation of the structures after operation.

Treatment of Barbital Poisoning with Dextrose.—Sanderson reports a case in which the administration of dextrose intravenously saved the patient's life. A man took forty tablets (200 grains, or 13 Gm.) of barbital with suicidal intent, at 3 p. m., September 1. He was deeply comatose and unable to swallow, his face was flushed, there was deep, stertorous breathing, and he could not be roused by any means. Reflexes were present, but there was almost no voluntary muscular movement. At 7:30 p. m. his stomach was washed out, and epsom salt was instilled. Strong coffee was given both rectally and by mouth several times, as well as other stimulants, but without effect. Large involuntary bowel movements and involuntary urination occurred several times. Despite treatment, the patient became progressively worse. At 8 p. m., September 2, he was cyanotic, the pupils were dilated, the temperature was 102.6, the pulse was 150, and respirations numbered 64. He appeared about to die. Eight hundred cubic centimeters of 20 per cent dextrose was given intravenously. An hour later the patient had a chill and became restless, moving about for the first time since entry. This condition continued throughout the night. At 6 a. m. the patient began talking incoherently and for the first time could swallow. The following day, September 4, he was semiconscious but confused. September 5 he was improved, and September 6 was quite rational.

Canadian Public Health Journal, Toronto

21: 583-634 (Dec.) 1930

State Health Insurance Movement in British Columbia. J. W. McIntosh, Vancouver.—p. 584.
Public Health Services in Alberta. M. R. Bow, Alberta.—p. 590.
Health and Sickness Insurance in Saskatchewan. F. C. Middleton, Saskatchewan.—p. 601.
Public Medical Services in Manitoba. F. W. Jackson, Manitoba.—p. 608.

Colorado Medicine, Denver

28: 1-52 (Jan.) 1931

Recent Accomplishment and Future Prospect in Tuberculosis Research. E. R. Long, Chicago.—p. 5.
Public Education for Tuberculosis Prevention. H. E. Kleinschmidt, New York.—p. 16.
Importance of Animal Inoculation with, and Culture of, Sputum Microscopically Negative for Tubercle Bacilli. I. D. Bronfin and L. T. Black, Denver.—p. 19.
Childhood Tuberculosis: Review. J. J. Waring, Denver.—p. 23.
Prevention and Treatment of Laryngeal Tuberculosis. F. R. Spencer, Boulder.—p. 29.

Maine Medical Journal, Portland

21: 209-230 (Dec.) 1930

Cancer Statistics in Maine and United States. W. L. Holt, Augusta.—p. 212.
Angina Pectoris and Acute Coronary Occlusion. T. J. Burrage, Portland.—p. 219.
Malignant Hypertension. E. R. Blaisdell, Portland.—p. 222.

Minnesota Medicine, St. Paul

13: 855-938 (Dec.) 1930

Spinal Anesthesia with Reduced Dosage of Spinocain. A. Schwyzer, St. Paul.—p. 855.
Practical Value of Examination of Blood Smears. C. H. Watkins and F. J. Heck, Rochester.—p. 860.
Treatment of Pernicious Anemia with Gastric Tissue of Swine. H. M. Conner, Rochester.—p. 865.
*Intravenous Administration of Sodium Amytal for Alleviation of Pain During Labor: Forty-Six Cases. J. J. Swendson, St. Paul.—p. 868.
*Use of Sodium Amytal in Nervous Disorders. L. R. Gowan, Duluth.—p. 874.
Problem of Disease of Paranasal Sinuses. H. I. Lillie, Rochester.—p. 877.
Palsy of Cranial Nerves. L. H. Ziegler, Rochester.—p. 880.

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Encephalitis. W. H. Hengstler and G. N. Ruhberg, St. Paul.—p. 888.
Significance of Temporary Blindness. W. L. Benedict, Rochester.—p. 891.
Circulatory Tests Previous to Amputation. W. T. Peyton, Minneapolis. —p. 896.
Recurrent Lymphangitis. W. H. Goeckerman, Rochester.—p. 902.
Leg Lengthening for Shortening Due to Infantile Paralysis. W. H. Cole, St. Paul.—p. 904.
Intestinal Foreign Bodies: Removal by Appendectomy or Body Posture Change. F. H. Stangl, St. Cloud.—p. 909.
Ureteral Stone with Periureteral Extravasation. A. N. Collins and G. Clement, Duluth.—p. 910.

Sodium Amytal for Alleviation of Pain During Labor.—Swendson asserts that when the dosage and intervals are individualized, the intravenous administration of sodium amytal during the latter half of the first stage and during the second stage of normal labor induces satisfactory amnesia in nine out of ten cases. Labor is rarely, if ever, prolonged by its use and may sometimes be hastened. There is no evidence of harm to the mothers. Slight to extreme restlessness results from its administration in half of the patients and is an objectionable feature of the procedure. Restlessness can be controlled toward the end of the second stage and delivery facilitated by the use of an inhalation anesthetic, of which lesser amounts than usual need be administered. One third of the babies are somewhat apneic at birth, apparently because of a torpidity of the respiratory center induced by the drug, and require stimulation to establish respiration. No other deleterious effects of the drug are observed in the postnatal behavior or weight changes of the babies.

Sodium Amytal in Nervous Disorders.—Gowan has used this drug in the various types of cases that one encounters in the usual psychiatric practice. He has used it, to a large extent, for its sleep-producing action. He found it a most excellent drug in controlling convulsions when given intravenously. He has also used it in four cases of idiopathic epilepsy. These cases have been observed over a period of from three to four months. The average dose has been from 1½ to 3 grains (0.1 to 0.2 Gm.) two or three times a day. These patients were all previously given phenobarbital. In two cases there was no perceptible change in the frequency or severity of the convulsions. In one case the convulsions were more severe and more frequent than when phenobarbital was given, and in one case the patient reported longer intervals between convulsions and some improvement in his general feeling of well being. However, these cases have not been observed over a sufficient length of time to draw definite conclusions as to its value in epilepsy. As a daytime sedative in psychoneurotic cases, it has been Gowan's observation that the drug, unless given in very small doses, has too great a soporific action, and if given in small doses its action is very transient. As a soporific in psychoneurotic cases, and also in psychotic cases attended by marked excitement and depression with severe insomnia, when given in carefully adjusted doses, it is a real aid in obtaining sufficient restful sleep with a minimal degree of depressant action.

Nebraska State Medical Journal, Norfolk

14: 1-40 (Jan.) 1931

Country Doctor Looks at Female Complaints. A. E. Hertzler, Halstead, Kan.—p. 1.
Coronary Thrombosis. G. W. Covey, Lincoln.—p. 4.
Minot-Murphy Treatment in Types of Anemia Other Than Pernicious Anemia. V. E. Levine, Omaha.—p. 9.
Management of Uterine Cervix (Carcinoma Excluded). R. Luikart, Omaha.—p. 16.
Goiter: No. V. A. Brown, Omaha.—p. 21.
Amebiasis Cutis. G. M. Hansen, Madison, and L. Start, Norfolk.—p. 23.
Achlorhydria as Etiologic Factor in Vitiligo: Four Cases. H. W. Francis, Bancroft.—p. 25.
Paleopathology. F. B. Young, Fering.—p. 26.

Oklahoma State Medical Assn. Journal, Muskogee

23: 385-424 (Dec.) 1930

Medical Aspects of Dental Hypoplasia and Caries in Children. W. M. Taylor, Oklahoma City.—p. 385.
Use of Lipoidal Extract of Corpus Luteum: Lipo-Lutin. M. B. Glissmann, Okmulgee.—p. 387.
Meningococcic Meningitis. G. H. Garrison, Oklahoma City.—p. 392.
Rural Medical Economic Situations. E. P. Veatch, Okeene.—p. 397.
Surgical Treatment of Pulmonary Tuberculosis. D. S. Allen, St. Louis. —p. 400.
Effect of Some Drugs on Blood Picture. L. A. Turley, and H. A. Shoemaker, Oklahoma City.—p. 403.
Rational Treatment of Carcinoma of Cervix Uteri. W. Long, Oklahoma City.—p. 406.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British J. of Actinotherapy & Physiotherapy, London

5: 199-222 (Jan.) 1931

Diathermy and Other Electrical Agents in Infantile Paralysis. H. Bordier.—p. 201.
Indirect Surgical Diathermy. W. J. Turrell.—p. 204.
Treatment of Common Painful Conditions by Diathermy. J. Cowan. —p. 205.
Diathermy in Gynecology. J. Wilson.—p. 207.
Treatment of Rheumatoid Arthritis by Combined General and Intrapelvic Diathermy. P. Bauwens.—p. 209.
Diathermy Enucleation of Tonsils. W. Collins.—p. 211.
Physical Basis of Diathermy Treatment. B. D. H. Watters.—p. 213.
Use of Static Current: Rationale and Indications. F. H. Humphris. —p. 214.

British Journal Experimental Pathology, London

11: 393-524 (Dec.) 1930

Melioidosis: Dissociation of Bacillus Whitmori. L. Nicholls.—p. 393.
*Iodine Content of Blood of Patients Suffering from Cancer. F. S. Fowweather.—p. 409.
Determination of Bilirubin by Diazo-Reagents. G. Hunter.—p. 407.
*Two Types of Bilirubin Diazo-Reaction in Serum; Hypothesis on Nature of Bilirubin in Serum from Hemolytic Jaundice. G. Hunter.—p. 415.
*Influence of Intravenous Injection of Urea on Exchange of Substances Between Blood and Tissues. H. Donovan and O. Brenner.—p. 419.
Intra-Ocular Pressure and Drainage of Aqueous Humor. W. S. Duke-Elder.—p. 438.
Blood Pigment in Obstructive Jaundice: van den Bergh Reaction. W. J. Griffiths and G. Kaye.—p. 441.
Normal Flocculating H- and Granulating O- Agglutinins for Bacillus Typhosus in Serums of Different Species. W. A. Timmerman.—p. 447.
*Response of Grain-Fed Pigeons to Substances Effective in Pernicious Anemia. J. M. Vaughan, G. L. Muller and L. Zetzel.—p. 456.
Virulence of Hemolytic Streptococci. II. Influence of Oxygen on Maintenance of Virulence in Broth Cultures. E. W. Todd.—p. 469.
Id. III. Influence of Oxygen on Restoration of Virulence to Matt Attenuated Cultures. E. W. Todd.—p. 480.
Tuberculin Sensitivity in Rats. H. Schütze and S. S. Zilva.—p. 489.
Method for Kataphoresis of Biologic Materials. F. C. Smith and J. Marrack.—p. 492.
Diphtheria Toxin-Antitoxin Floccules. F. C. Smith and J. Marrack. —p. 494.
Virus of Psittacosis. S. P. Bedson and G. T. Western.—p. 502.
Concentration of Protective Substance in Antipoliomyelitis Serum. W. T. J. Morgan and R. W. Fairbrother.—p. 512.

Iodine Content of Blood of Patients Suffering from Cancer.—The results of Fowweather's investigation show that there is no uniform reduction of the blood iodine in cases of cancer. Out of twenty-four cases examined, only eleven show values below what may be considered as normal. This failure to find a constant association between low blood iodine and cancer is said to be definite evidence against the view that iodine deficiency is a cause of cancer. While there may perhaps be a tendency toward lowered blood iodine in cancer, there is at least as much justification for assuming that the reduction is the result of the cancerous condition as there is for assuming it to be the cause of such a condition. Further, since in rather less than half of the cases examined was any reduction of blood iodine indicated, the determination of blood iodine as a diagnostic test for the presence of malignant disease can have no value whatever.

Two Types of Bilirubin Diazo-Reaction in Serum.—An attempt has been made by Hunter to determine the probable nature of the two kinds of diazo-reaction for bilirubin obtainable in icteric serums. The so-called direct reaction is said to be most probably due to the presence of sodium hydrogen bilirubinate, and the so-called delayed reaction to the presence of free bilirubin in an undetermined solvent that is soluble in alcohol.

Influence of Intravenous Injection of Urea.—The results of the intravenous injection of 5 Gm. of urea in health and in various diseases were investigated by Donovan and Brenner. By the time the urea has mixed with the blood (three minutes), 80 per cent has left the blood stream. It is suggested that the urea leaves the blood by a process of simple diffusion, passing into the water of the cells as well as into the free water, and that the process is complete in fifteen minutes, when the concentration of urea in the blood equals that in the tissues. A review of the literature indicates that urea is unique in this respect. With no other substance investigated is the distribution uniform over blood and tissues, and in most the concentration in some tissues is greater than in the blood, showing that the

process by which the substance enters the tissues is not one of simple diffusion alone. It is suggested that the sudden introduction of urea into the body delays the formation of urea and may even bring it to a standstill for the first two hours after the injection. The importance of this in connection with the production of uremia is mentioned. Evidence is discussed in favor of the view that except in edematous patients urea injection causes some salt to pass out of the body fluids, to be stored in a "dry" form in the salt depots of the body, thus reducing the crystalloid concentration of the body fluids which had been raised by the injection of urea, but that, in most cases of edema, salt is liberated from the depots and enters the body fluids. It is pointed out that the capillaries are completely permeable to water and to most of the substances dissolved in the blood plasma and are partly permeable to the plasma proteins. The factors retaining the blood inside the vessels are discussed. None of the causes ordinarily mentioned seem sufficient. It seems probable that the true cause must be sought in the tissues rather than in the blood or blood vessels. It is suggested that perhaps the amount of fluid leaving the blood is limited by the capacity of the tissues for taking up water and that this in its turn may be influenced by changes in the acid-base balance or by alterations in the relative proportions of various ions. A review of the literature shows that in experimental edema usually less fluid passes into the tissues, after intravenous injection, than in nonedematous animals, suggesting that an important factor in the production of edema is a deficient power of the tissues to hold and bind water, which therefore accumulates in the tissue spaces as edema fluid. The authors' results suggest that in edema the tissues are also less able to bind salt, which accumulates also in the free tissue fluids.

Response of Grain-Fed Pigeons to Substances Effective in Pernicious Anemia.—Experiments dealing with the administration of substances effective in pernicious anemia and other test material to grain-fed pigeons are described by Vaughan et al. The oral or intravenous administration of liver preparations effective in anemia produced a consistent pronounced response of the reticulocytes, and one preparation and two subfractions prepared from it which had received no clinical tests also caused a similar response. Beef steak was as effective as potent liver preparations in causing a rise of the reticulocytes. No reticulocyte response was obtained to (1) a liver preparation which was inert for pernicious anemia, (2) a liver extract in which the active principle had been destroyed, (3) vitamin B_1 and B_2, (4) histamine, (5) sodium chloride, and (6) casein. An isolated observation suggests that sepsis interferes with the action of a potent liver preparation in pigeons as it does in pernicious anemia. Substances capable of influencing the reticulocyte level are without effect on the total red blood cell count. The grain-fed pigeon may perhaps suffer from a mild dietary deficiency, which is possibly a factor of importance in permitting its bone marrow to respond to certain substances.

British Medical Journal, London

1: 43-80 (Jan. 10) 1931

Outlook on Tuberculosis: Changing Orientation. R. Philip.—p. 43.
Plea for Earlier *Diagnosis of Abdominal Emergencies. C. H. Fagge.—p. 50.
Removal of Portions of Malignant Tumors of Rectum for Confirmatory Section. W. B. Gabriel.—p. 52.
*Method of Exciting Incipient Movement in Weakened and Paralyzed Muscles. A. E. Porritt and O. F. G. Smith.—p. 54.
Safe Method of Dealing with Ethmoiditis. E. A. Peters.—p. 56.
Treatment of Erysipelas by Roentgen Rays: Three Cases. R. H. Jamieson and F. Hernaman-Johnson.—p. 57.

Method of Exciting Incipient Movement in Paralyzed Muscles.—The methods described here by Porritt and Smith aim at eliminating all checks to the activity of the weakened muscles by counterbalancing the weight of the limb, inducing a relaxation of the opponent muscles, and finally counteracting almost entirely inertia, friction and gravity. This allows the feeble minimal efforts of the affected muscles to act, not in the stationary limb but in association with pendulum movements, maintained by the operator at first and later by the patient. The apparatus necessary for this purpose is an overhead bar with ball-bearing pulleys, through which run adjustable ropes and slings. By this means the faintest return of power is allowed free play, the activity of the muscle contributes to its more rapid recovery and the patient, persuaded by the wide range of movement into thinking that he is accomplishing more than is actually the case, is encouraged to exert every effort without the usual fear of pain, thereby hastening restoration to normal function.

Lancet, London

1: 1-60 (Jan. 3) 1931

*Uterine Hemorrhage: Malignant Disease. B. Whitehouse.—p. 1.
Surgical Trauma and Convalescence. J. B. Hume.—p. 6.
*Mutation and Pathogenicity Experiments with B C G. G. Dreyer and R. L. Vollum.—p. 9.
*Electrocardiographic Changes During Brief Attacks of Angina Pectoris: Origin of Anginal Pain. J. Parkinson and D. E. Bedford.—p. 15.
Postinfluenzal Acute Parenchymatous Keratitis. J. H. Doggart.—p. 19.
*Liver Preparations in Diabetes. P. C. Brett, W. A. Broom and F. O. Howitt.—p. 20.
*Estimation of Protein in Urine. P. M. T. Kerridge.—p. 21.
Spontaneous Pneumothorax. G. B. Page.—p. 22.

Uterine Hemorrhage: Malignant Disease.—One form of uterine bleeding emphasized by Whitehouse as being a most important, perhaps the most important, diagnostic sign is cancer of the uterus; namely, the hemorrhage that occurs as a direct result of coitus. Coitional hemorrhage must always be regarded with the greatest suspicion. It is true that a blood-stained discharge or, in some cases, slight actual hemorrhage sometimes follows coitus, when the cervix is the seat of an extensive erosion and ectropion, or when a simple polypus is projecting through the os externum. A severe bleeding associated with coitus is, however, nearly always evidence that cervical carcinoma exists, and a careful examination of the cervical tissues is demanded. In 1929, 4,428 women died in England and Wales from malignant disease of the uterus, a mortality rate of 215 per million females.

Mutation and Pathogenicity Experiments with B C G.—The pathogenic properties of two strains of B C G have been investigated by Dreyer and Vollum. Deep bouillon subcultures of B C G (1) produced generalized tuberculosis in all of twenty-eight guinea-pigs inoculated intraperitoneally with doses of from 0.1 to 20 mg., and produced severe progressive tuberculous lesions in all of twelve rabbits inoculated intravenously with doses of from 5 to 50 mg. Twenty-two of twenty-three guinea-pigs infected either directly with tuberculous material from these animals or with cultures from the tuberculous material developed generalized tuberculosis. *Bacillus tuberculosis* was found in cultures from the heart blood of all of the twenty-eight guinea-pigs injected directly with deep cultures of B C G (1), and in nineteen of the twenty-three guinea-pigs infected with pathologic material or cultures obtained from the animals originally infected with culture. The pathogenicity of B C G 359 was tested on guinea-pigs. One of twenty guinea-pigs injected with the culture as received from the Pasteur Institute died from an unknown cause 672 days after an intraperitoneal dose of 5 mg., having caseous tuberculous lesions, without signs of healing, in the right testis and the left epididymis. Deep bouillon subcultures of this strain were tested on fifty-six guinea-pigs, twelve of them receiving doses of 10 mg. intraperitoneally; of these twelve, three that were killed and two that died had definite progressive tuberculous lesions, and four of the five had caseous abscesses in the testes or epididymides.

Electrocardiographic Changes During Brief Attacks of Angina Pectoris.—In five cases, Parkinson and Bedford were able to obtain electrocardiograms during and after short paroxysms of anginal pain. These showed that the ventricular deflections were modified during the paroxysm of pain and that the modifications disappeared with the pain. In none of these cases was there any question of coronary thrombosis at the time the records were taken, though one patient had probably had coronary thrombosis three months previously. In all these five patients, electrocardiograms taken during short anginal paroxysms showed definite and transitory changes in the ventricular deflections. There was a depression of R-T and a diminution in the amplitude or inversion of the T waves in one or more leads, changes closely resembling though not so pronounced as those which follow cardiac infarction in the early stages. It is significant that both transient anginal pain and cardiac infarction can affect the electrocardiogram in a similar manner; and it seems reasonable to infer that the mechanism underlying this electrocardiographic change is essen-

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tially the same in the two cases—an ischemia of a part of the cardiac muscle.

Liver Preparations in Diabetes.—Brett et al. have carried out Blotner and Murphy's directions for the preparation of their special extract of liver on several occasions and have consistently found that the extract was quite ineffective in lowering the blood sugar of normal rabbits when administered in suspension by stomach tube in doses equivalent to one-tenth pound of liver, a quantity which, according to Blotner and Murphy, is equivalent to about 1 unit of insulin. In the authors' experience, an injection of 1 unit of insulin produces a considerable fall in blood sugar in the type of rabbits usually employed for insulin assay. Extracts were prepared from both fresh and frozen liver by the Blotner and Murphy process and extraction periods of both twelve and forty-eight hours were tried, but in no case was any hypoglycemic effect observed. Liver extract (Boots), prepared by the Medical Research Council's process was also found to have no hypoglycemic action. In fact, in practically all cases a slight but definite hyperglycemia resulted.

Estimation of Protein in Urine.—In the method described by Kerridge, the urine is mixed with a carbon suspension, and carbon and protein are simultaneously precipitated with trichloracetic acid. The grayness of the precipitate depends on the amount of protein, when the amount of carbon is constant. The tone is compared with standards.

South Africa M. Assn. Journal, Cape Town

4: 745-776 (Dec. 27) 1930

Head Injuries and Their Features. W. Welchman.—p. 747.
Oral Disease in Relation to Ear, Nose, Throat and Eye. M. S. Lewin. —p. 754.
Three Cases of Cesarean Section for Different Conditions. J. A. Lloyd. —p. 756.
Inflammatory Lesions of Organs in Female Pelvis: Origin, Stages and Treatment. F. K. Te Water.—p. 758.
Case of Full-Time Ectopic Pregnancy. A. S. Wilson.—p. 761.

Annales de l'Institut Pasteur, Paris

45: 525-672 (Nov.) 1930

*Preventive Antituberculosis Vaccination of Nurslings with B C G in Foreign Countries: Effects on General Infant Mortality. A. Calmette. —p. 525.
Hemorrhagic Lesions Caused by Clostridium Aerogenes-Capsulatum. M. Weinberg and N. Combiesco.—p. 547.
Absorption by Mouth of Paratubercle Bacilli in Guinea-Pig and Rabbit. P. Nelis.—p. 581.
*Preventive Vaccination of Human Beings Against Undulant Fever. C. Dubois and N. Sollier.—p. 596.
Relations Between Growth of Anaerobic Micro-Organisms and Potential of Culture Medium. R. Platz and J. Gekuso.—p. 613.
Campaign Against Malaria in Cochin-China. H. G. S. Morin.—p. 641.
Transplantation of Human Cancer in Chimpanzee. J. Troisier.—p. 660.

Vaccination of Nurslings with B C G in Foreign Countries: Effects on General Infant Mortality.—The results of an extensive investigation of the effects of vaccination of nurslings with B C G were reported at the Seventh Conference of the International Union Against Tuberculosis, held in Oslo in August, 1930. Calmette says that the absolute innocuousness of the vaccine was again confirmed by bacteriologists from many nations. No basis was found for the recent claims that certain strains of B C G, namely, type S (smooth), could be isolated, which would produce progressive tuberculous lesions; the investigators were unable to isolate such strains themselves, and their examination of cultures furnished them of type R (rough) and type S showed that both had been contaminated by other virulent bacteria. Reports from all the countries of Europe except Austria, Great Britain and Portugal, and from Argentina, Brazil, Canada, Chile, the Belgian Congo, Cuba, the United States of America, Japan, Maurice Island and Uruguay, showed that systematic vaccination of nurslings with B C G had produced a marked decrease in the general mortality from all causes among nurslings. It was noted, moreover, that the mortality during the first month of life, before the effects of the vaccination have time to be manifested, remains approximately the same among vaccinated and nonvaccinated infants. This seems an additional reason for attributing the decreased number of deaths during the first year to the effects of vaccination with B C G. The general mortality was diminished by about 50 per cent by the vaccination, while deaths from tuberculous infection were practically eliminated. Since the deaths from tuberculosis have never been more than a very small proportion of the total number, it is logical to assume that vaccination with B C G increases the infant's resistance not only to tuberculosis but to other infections as well.

Vaccination of Human Beings Against Undulant Fever.—Human beings develop undulant fever through either accidental or professional contact with sheep, goats or cattle with melitococcosis. Because of the great extent of the disease among animals and the impossibility of avoiding contact with infected animals or of knowing which ones are infected, the only satisfactory prophylaxis for all persons living in a region where melitococcosis has developed and having any contact with animals is preventive vaccination. Dubois and Sollier report that among 111 persons vaccinated, all of whom were directly exposed to infection, there were no cases of undulant fever. On the other hand, among thirty-six persons who were not vaccinated, about 75 per cent of whom had no direct contact with infected animals, two cases of fever developed. Since the vaccinations took place within from three to eight months previous to the time of writing, the authors have no data as to the duration of the immunity produced. They describe in detail the preparation of the vaccine used, which is a combination of strains of *Brucella melitensis* and *Brucella abortus* from both animals and human beings. They also give definite instructions for the administration of the vaccine. No harmful results have been produced by the vaccination.

Revue de Chirurgie, Paris

68: 225-317 (Nov.) 1930

Dislocations of Pelvis. Rouvillois, Maisonnet and Salinier.—p. 225.
Influence of Cicatrization Neuromas of Sectioned Nerves on Circulation of Blood. R. Fontaine and F. Orban.—p. 285.
*Combination of Splenic and Renal Rupture. R. Desjacques, F. Bérard and H. Lathuraz-Viollet.—p. 296.

Combination of Splenic and Renal Rupture.—Although the combination of splenic and renal rupture is not found frequently, Desjacques et al. feel that it is of sufficiently frequent occurrence to deserve a careful study. The lesions observed in the spleen are always serious, while the associated renal lesions may or may not be important. The authors attribute this to the fact that minor lesions of the spleen do not produce definite symptoms and are usually never detected. The ruptures are usually caused by a severe traumatism. Shock symptoms are almost always observed immediately afterward, followed by signs of internal hemorrhage and by more or less violent spontaneous pain in the region of the left flank. Although the entire abdomen may be painful, a more distinct pain produced by palpation in the left flank is a significant symptom. Contraction of the abdominal wall near the spleen is often present; the authors consider it probably the most specific of all the symptoms. If the kidney is involved in the lesions, hematuria and a lumbar hematoma are usually present. The evolution in such cases is always fatal unless intervention is practiced immediately; death occurs in from two hours to three days. Surgical treatment is the only possible remedy, the medical treatments used being merely palliative and supplementary. Since local anesthesia does not permit a thorough examination of the abdominal cavity and spinal anesthesia is dangerous for patients in a weakened condition, the use of general anesthesia is recommended. Since the symptoms often do not justify a precise diagnosis, an exploratory laparotomy should be made with a median, a supra-umbilical or a subumbilical incision, depending on the case. The authors describe several operations for the treatment of lesions in different localizations. They particularly emphasize the necessity for early recognition of the symptoms and prompt intervention.

Revue de Médecine, Paris

47: 719-817 (Nov.) 1930

*Tabetiform Solar Crises in Course of Gastroduodenal Ulcers. C. B. Udaondo, M. M. Casteigts and G. P. Gonalons.—p. 719.
Diarrheas of Hepatic Origin. G. Farey, Deron and H. Desuille.—p. 745.
Gastro-Enterology in 1929. J. Rachet.—p. 763.

Tabetiform Gastric Crises in Course of Gastroduodenal Ulcers.—Udaondo et al. show that in the course of gastric and duodenal ulcers painful attacks often occur that resemble the gastric symptoms of tabes. In fact, the resemblance is so marked that it often leads to an incorrect diag-

nosis of tabetic conditions. However, it is always possible to eliminate tabes by a clinical examination that reveals the absence of the neuropathic and humoral characteristics of this disease. Moreover, analysis of the gastric and duodenal secretions, the existence of latent hemorrhages, when they are present, and roentgen examination make an accurate diagnosis possible. Various theories as to the pathogenesis of the tabetiform crises have been proposed. The two explanations considered most sound by the authors are that neuritic lesions induce solar neuralgia and that pancreatic scleroses by a mechanical action produce the same symptoms. The authors recommend, in general, the use of the same medical treatment as in ordinary ulcerous conditions; for instance, the administration of antispasmodics such as papaverine, atropine and belladonna. However, if medical treatment does not bring relief, and certainly if one suspects the existence of a pancreatitis that seems likely to develop further, surgical intervention is indicated. The authors do not venture to prescribe the operation of choice; they suggest that in this condition the case should be turned over to a good surgeon, who should be able to solve the problem on the basis of the previously obtained diagnostic and clinical data.

Giornale di Clinica Medica, Parma

11: 1121-1184 (Nov. 20) 1930

Endocranial Hemorrhages Due to Trauma. G. Benassi.—p. 1121.
*Local Tuberculinic Allergy in Pulmonary Tuberculosis. G. Borsalino. —p. 1134.
Latent Acidity of Urine in Hepatic Cirrhosis. G. Donini.—p. 1147.

Local Tuberculinic Allergy in Pulmonary Tuberculosis.—Borsalino applied to about 100 patients with pulmonary tuberculosis skin tests with tuberculin at various points of the two hemithoraces, starting with the conception that the skin reaction to tuberculin is not the expression of a humoral action but the result of the skin changed in its trophism due to tuberculous toxins. The results as shown in figures and roentgenograms reveal positive skin reactions to tuberculin in one hemithorax and negative reactions in the other hemithorax. Furthermore, in one and the same hemithorax positive reactions were obtained in various points and negative reactions at other points. In correspondence with the diseased organ, the positive reactions indicated lesions of a productive nature and the negative reactions lesions of an evolutive nature. Hence, the system of skin tests with tuberculin would localize the various areas of the lungs where tuberculous foci exist, thus furnishing a criterion of the state of evolution.

Policlinico, Rome

37: 1665-1700 (Nov. 17) 1930. Practical Section

*Insulin Therapy in Emaciation Following Calculous Cholecystitis. D. Ceccarelli.—p. 1665.
Furuncle of Kidney. P. Emiliani.—p. 1672.

Insulin Therapy in Emaciation Following Calculous Cholecystitis.—Ceccarelli, after a short survey on insulin treatment in emaciation states in general, reports a case of marked emaciation (loss of weight 20 Kg.) following cholelithiasis, in which insulin (20 units per day in two doses) was administered. The surprising outcome (gain in weight of 17.8 Kg.), with a return of general conditions almost to normal, induces the author to advise insulin treatment in such emaciation states.

Archivos Argentinos de Pediatría, Buenos Aires

1: 437-512 (Oct.) 1930. Partial Index

*Achondroplasia in Two Brothers. F. de la Torre and G. Allende. —p. 440.

Achondroplasia in Two Brothers.—De la Torre and Allende report two cases of marked achondroplasia in brothers, aged 20 and 6 months, respectively. The children (sons of first cousins) were mentally and physically normal, except for the achondroplasia. The oldest child had the typical symptomatology of the abnormality. The youngest, besides the marked achondroplasia, had a dorsolumbar kyphosis, which at the roentgen examination appeared like a kyphosis caused by rickets. Both children presented marked dwarfism for their ages. Neither the parents nor the children had syphilis. The parents were of a height above normal. The father was almost a giant. He had, however, slightly noticeable achondroplastic hands. The authors consider the father as an atypical achondroplastic person. Several theories on the pathogenesis of achondroplasia are reviewed. The authors state that, in their case, consanguinity was responsible for the condition of the children. They based their statement on the following fact: The father had three normal children from his first wife. This fact, the authors believe, points out that his union to a person to whom he was not related caused the disappearance of a possible familial predisposition for the inheritance of a condition which the father exhibited in an atypical form. On the contrary, the union with his second wife (his blood relation) accentuated that propensity, according to the laws of atavism, which probably existed in both him and his wife as a familial stigma, resulting in the complete development of a typical form of the condition.

Jahrbuch für Kinderheilkunde, Berlin

129: 253-374 (Nov.) 1930

*Colitoxin: Composition. B. P. B. Plantenga.—p. 253.
Peptone Shock: Potassium and Calcium Contents of Blood Serum. E. Schiff, H. Eliasberg and A. Mazzeo.—p. 266.
Symmetrical Necrosis of Skin in Scarlet Fever: Case. G. Fedders. —p. 270.
*Effect of Ingestion of Vitamins on Chemical Composition of Mother's Milk. I. Greiner and J. Mosonyi.—p. 282.
Diphtheria Mortality: Causes and Prevention. F. Szirmai.—p. 293.
Acidity of Gastric Juice in Healthy New-Born Infants and in Nurslings. T. Izumita.—p. 319.
*Genesis of Diaphyseal Foci in Bones of Nurslings with Congenital Syphilis. H. Schönfeld.—p. 335.
*Whooping Cough: Vaccine Treatment. P. Leitner.—p. 343.
*Takata-Ara Reaction of Cerebrospinal Fluid in Meningitis. M. Kasahara and M. Konishi.—p. 350.

Colitoxin: Composition.—Plantenga describes experiments on guinea-pigs in which he demonstrated that the substance that he had previously proved to be the etiologic factor for the syndrome of alimentary intoxication and had designated as colitoxin is a compound one. It is composed in part of a substance bound to the colon bacillus and in part of a substance eliminated by the colon bacillus during its growth, apparently an aggression. Both the coli-endotoxin and the coli-aggressin are, when acting alone, nontoxic. The coli-aggressin, however, inhibits the phagocytic action of the leukocytes so that the dead colon bacilli and the endotoxin bound to them cannot be rendered harmless and the endotoxin exerts its toxic action. As a result, syndromes appear that are essentially of purely bacterial origin and result in the clinical picture of intestinal catarrh. This condition is not an "alimentary intoxication" (Finkelstein) but a colitoxicosis.

Effect of Ingestion of Vitamins on Chemical Composition of Mother's Milk.—Greiner and Mosonyi studied the effect of an increased ingestion of vitamins A and B by nursing mothers on the chemical composition of their milk; at the same time note was taken of the increase in weight of the nurslings and their reaction to intercurrent diseases. As a result of the increased ingestion of vitamins the fat content of the milk increased in 41.2 per cent of the women, remained normal in 31.6 per cent and dropped below normal in 31.6 per cent. In 33 per cent of the cases a slight increase in the ash content of the milk was demonstrated. The amounts of the other constituents of the milk remained normal. The nurslings of the women to whom the vitamins had been administered showed a 15 per cent greater increase in weight and a greater resistance to intercurrent diseases than did the nurslings of the women to whom the vitamins had not been administered.

Genesis of Diaphyseal Foci in Bones of Nurslings with Congenital Syphilis.—Schönfeld reports a case of multiple foci of degeneration in the diaphysis of the long bones of an infant with congenital syphilis. Because of band-shaped shadows of great density and approximately parallel to the epiphyseal lines he believes that the foci of degeneration in the diaphysis of the bones were not the result of primary osteitic or osteomyelitic syphilitic processes but of osteochondritis.

Whooping Cough: Vaccine Treatment.—According to Leitner, vaccine treatment represents a great advance in the crusade against whooping cough. It should be begun early on the basis of a diagnosis made by means of a leukocyte count. The injections should be given subcutaneously or intramuscularly at intervals of from twenty-four to forty-eight hours.

Large doses of a concentrated vaccine give the best results. If the desired action is not obtained the injections should be continued until from six to eight have been given. In advanced cases of whooping cough the duration of the disease cannot be shortened by means of vaccine treatment but the paroxysms can be rendered less severe.

Takata-Ara Reaction of Cerebrospinal Fluid in Meningitis.—On the basis of a study of the reaction in thirty cases of tuberculous meningitis and twenty cases of suppurative meningitis, Kasahara and Konishi state that the Takata-Ara reaction in the cerebrospinal fluid is not specific for meningitis. In tuberculous and suppurative meningitis the cerebrospinal fluid shows not only the rose-red Takata-Ara reaction but also other color reactions and the flocculation reaction. The fact that the pathologic cerebrospinal fluid shows a color reaction or a flocculation reaction depends on changes in the albumin: globulin ratio. The Takata-Ara reaction of the cerebrospinal fluid is modified by previous ingestion of salts of bromine and iodine.

Mitteilungen a. d. Grenzgeb. d. Med. u. Chir., Jena

42: 1-142 (Nov. 13) 1930

*Thyroidectomy in Malacia of Trachea. M. Sgalitzer.—p. 1.
*Acute Articular Rheumatism: Disturbances in Peripheral Nervous System. E. Granström and E. Harisomenowa.—p. 17.
Errors of Technic in Operations on Stomach. H. Biesenberger and W. F. von Wieser.—p. 29.
Postoperative Jejunal Ulcer: Etiology. E. Hertel.—p. 57.
Vermiform Appendix: Motor Mechanism, Resorption and Pathology. K. Westphal.—p. 99.
Viosterol Poisoning: Morphologic and Chemical Changes. H. Tammann.—p. 125.

Thyroidectomy in Malacia of Trachea.—According to Sgalitzer, malacia of the cartilaginous framework of the trachea is one of the most dangerous complications of goiter. As a result of prolonged pressure atrophy, parts of the cartilaginous framework may disappear completely. The trachea may then collapse under the pressure of the constricting goiter and produce severe asphyxia or even death. The condition occurs not only in old persons who have had a goiter for many years but also in young persons. The tracheal cartilages of youths up to the eighteenth year seem even more susceptible to pressure atrophy than do the tracheal cartilages of adults and may undergo a marked loss of resistance after only a few years. In twenty-six persons with benign goiter, seven cases of severe malacia of the wall of the trachea were noted together with nineteen cases of definitely decreased resistance of the cartilaginous framework of the trachea. In all of the seven cases of severe malacia of the trachea, surgical removal of the goiter gave excellent end-results. The changes in the position of the trachea and the severe stenosis that was usually present were corrected in a short time. The return to normal was complete after four months. After this time there remained in four cases only a slight depression in the wall of the trachea; in two cases the lumen of the trachea was of the normal width and in one case there was a large concentric sacculation of the lumen of the trachea in the region of the malacia. The restoration of the lumen of the trachea was favored by the cicatricial retraction of the soft parts of the operative wound. Although the malacia persisted, all seven patients were completely relieved of symptoms.

Acute Articular Rheumatism: Disturbances in Peripheral Nervous System.—Granström and Harisomenowa state that not only do changes in the peripheral nervous system occur in acute articular rheumatism and other joint diseases but also the same zones of increased and of decreased cutaneous sensibility, paresthesias, irradiation of the pain to neighboring regions and painfulness of the nerve trunks occur in panaris and osteomyelitis as well as in fractures of bones, and that these changes appear and disappear with the disease of the joints and bones. In some cases there occur also changes in the tendon reflexes. Zones of decreased and of increased cutaneous sensibility in the region of diseased joints occur frequently in acute articular rheumatism and, like Head's zones, indicate a reflex modification of the cutaneous sensibility. Frequently the hypesthetic and hyperesthetic zones occur close together. The zones usually have the shape of an irregular armband surrounding the joint and never extend beyond a region innervated by one nerve. The disturbances in the peripheral nervous system that occur in articular rheumatism are not caused by degenerative changes in the nerves or in their branches but represent reflex phenomena of irritation. A review of the few cases of neuritis and polyneuritis of so-called rheumatic nature reported in the literature revealed that in almost all the cases the dependence of the neuritis on rheumatism had not been demonstrated conclusively. The great rarity of typical neuritis or polyneuritis in articular rheumatism shows that the rheumatic virus has scarcely any affinity for the peripheral nervous system. The authors believe, therefore, that there is no basis for designating the neuritis or polyneuritis that appears after exposure to cold as rheumatic; the condition should be termed a refrigeration neuritis or a neuritis caused by an unknown infection.

Münchener medizinische Wochenschrift, Munich

77: 1959-1998 (Nov. 14) 1930

*Clinical Experiences in Serology of Tuberculosis. F. O. Höring.—p. 1959.
*Relation of Dyestuff Excretion to Secretion and Morphology of Diseased Stomach. N. Henning and R. Jürgens.—p. 1961.
*Diagnosis of Latent Thrombosis. Von Hagen.—p. 1963.
Pregnancy Toxicoses and Reversed Eck's Fistula. W. Ortloph.—p. 1964.
Five Years of Sepsis Therapy with Serovaccine. G. Mayer.—p. 1968.
Chemotherapy in Streptococcal Infections. R. Hilgermann.—p. 1970.

Clinical Experiences in Serology of Tuberculosis.—Höring reports experiences with the complement fixation reaction in patients with tuberculosis. He points out that specific antibodies do not circulate in the blood during all stages of tuberculosis and therefore their demonstration is possible in only a part of the cases. The reaction can be positive only in those cases in which there exists not only a local, or a cell, allergy but also a humoral allergy. It is also probable that in existing allergy numerous types of antibodies may be present, and only a part of them will react to one antigen (extract). For this reason it is advisable that several antigens be used. In patients with active tuberculosis it was found that during the early stages of the disease the complement fixation reaction was frequently negative. In the further course of the disease it was often observed that the reaction became positive. In order to be completely informed about the allergic conditions, the author performed besides the blood test also Pirquet's skin reaction. The two reactions gave different results in many cases. Especially during the early stage when the complement fixation reaction was negative, the Pirquet skin reaction was strongly positive. When the complement fixation test was repeated on the day following the Pirquet test, about one half of the patients gave positive reactions in the sense of a provocation of the serum allergy. The author comes to the conclusion that in many cases the complement fixation reaction is a valuable diagnostic aid; however, the negative reaction is often deceiving. The reaction is of no especial value for the detection of tuberculosis in patients who have not been thoroughly examined.

Relation of Dyestuff Excretion to Secretion and Morphology of Diseased Stomach.—Because the gastric mucous membrane is capable of excreting dyestuffs following their intramuscular injection, Henning and Jürgens tested the excretion of neutral red in 161 persons. Some of these persons were healthy and the others had gastric disturbances. Nearly all of them had first had a gastroscopic examination. The method of the neutral red test was as follows: In contradistinction to most experimenters, who inject the dye intramuscularly, the authors injected it intravenously. This had the effect that the excretion period was considerably shortened. After the fractional withdrawal of the gastric juice had been completed, 5 cc. of a 1 per cent sterilized solution of the dye was injected intravenously. By continuous withdrawal of the gastric contents, by means of a retention catheter, the first appearance of the dyestuff in the stomach was detected. It was found that in patients with atrophy of the gastric mucous membrane and in cases of gastritis with complete achylia, there was no excretion of dyestuff through the stomach. In a few cases of severe achylic gastritis, the dyestuff appeared very late in the stomach. In the various forms of anacid gastritis, either normal or retarded excretion was noted. In subacidity, in normal acidity and in hyperacidity the excretion showed no differences. In twenty-four healthy persons with normal acidity or with hyper-

acidity, the same average excretion period was observed as in patients with the various organic disorders of the stomach. From this it may be concluded that the excretion of the dye in the stomach is independent of the secretion type, as long as the hydrochloric acid secretion is maintained. In three cases of histamine refractory, functional achylia with normal mucous membrane, normal excretion periods were observed. This seems to indicate that the excretory function of the gland cells cannot be inhibited by psychic influences.

Diagnosis of Latent Thrombosis.—Von Hagen reports the case of a woman, aged 35, who had undergone hysterectomy on account of uterine myomas. The postoperative course was normal. However, on the fourth day the patient felt a severe pain in the right shoulder. This pain persisted for about four days. On the thirteenth day after the operation the patient showed for the first time an increased temperature, and three hours later she died. The author thinks that the pain in the shoulder indicated a pulmonary embolism, which was caused by a thrombosis in a pelvic vein. The pain, which was probably a so-called Head's zone, should have been taken as a warning signal; the patient should not have been allowed to be up but should have been kept in bed and treated with morphine. The author is aware that the concurrence of latent thrombosis and Head's zone is not a daily occurrence. However, if, following an operation or in the course of a prolonged bed rest, a Head's zone appears, it may be assumed that somewhere a thrombosis exists, which has caused a "silent" embolism in the viscus corresponding to the area of cutaneous painfulness, and preventive measures should be taken.

Zentralblatt für Gynäkologie, Leipzig

54: 2817-2880 (Nov. 8) 1930

Morphology and Clinical Aspects of Intraplacental Hematoma. H. Fuchs.—p. 2818.
Lymphogranulomatosis of Female Genitalia. H. Lewinski.—p. 2824.
Intravenous Administration of Tribrom-Ethanol for Anesthesia in Gynecologic Interventions. G. Niemann.—p. 2826.
*Is Manoiloff's Seroreaction for Pregnancy Practical? M. Rodecurt and C. Jernakoff.—p. 2830.
Criticism of Usual Methods of Care of Umbilical Stump. A. L. Scherbak.—p. 2831.
*Foreign Bodies Left in Abdominal Cavity During Operations: Experiments with Contrast Gauze. I. Grünstein.—p. 2839.
Repeated Belated Separation of Placenta. H. Lehmann.—p. 2844.

Is Manoiloff's Seroreaction for Pregnancy Practical?—Rodecurt and Jernakoff report that, in an attempt to substitute for the biologic method of Zondek-Aschheim a chemical test for the detection of the hypophyseal hormone in the urine, Rodecurt made experiments with numerous reagents without finding an entirely satisfactory test. Then Manoiloff described a simple seroreaction for the diagnosis of pregnancy, with which he obtained correct results in from 92 to 96 per cent of the cases. To 0.3 cc. of fresh, clear serum, he adds 1 cc. of a 2 per cent aqueous solution of theobromine sodiosalicylate, shakes the mixture, and then adds a drop of a 0.2 per cent alcoholic solution of nile blue and again stirs the mixture. After from several minutes to an hour the mixture decolorizes and appears yellow or pinkish yellow if the serum is from a pregnant patient. However, if the woman is not pregnant the serum mixture is blue, bluish or pinkish blue. The authors investigated the reliability of this reaction by testing the serums of pregnant and of nonpregnant women, seventy-five in all. But in spite of a careful technic their results were unsatisfactory. The color nuances varied considerably and a clear differentiation between positive and negative reactions was impossible.

Foreign Bodies Left in Abdomen During Operations: Experiments with Contrast Gauze.—Grünstein points out that during operations foreign bodies are occasionally left behind. In case of clamps, rings or other metal objects a detection by means of roentgen rays is possible. But small gauze pledgets that are most frequently overlooked cannot be detected with the roentgen apparatus. Various methods have been recommended to prevent gauze compresses from being left behind, or, if they have been overlooked, to make them detectable by roentgen rays; namely, attaching a metal ring, a bronze wire or a leaden weight to each compress. However, all these procedures have their disadvantages. Cahn had the idea to prepare a special gauze for use in operations. Threads, impregnanted with thorium hydroxide, are woven into the gauze. These threads produce a shadow in the roentgenogram, especially when they are massed together as is the case in a compress. This so-called contrast gauze may be washed, sterilized, soaked with iodoform or other substances, or retained for a time in a body cavity, without losing the quality of being impermeable for roentgen rays. It has no irritative effects.

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Slight but Fatal Traumatic Hemorrhage of Brain: So-Called Duret's Lesions: Medicolegal Study. O. Berner.—p. 1155. C'td.
*Human Ovarian Tumor with Virilizing Effect on Bearer. O. Berner.—p. 1177.
*Incidence of Goiter and Occurrence of Iodine in Veitestranden in Sogn. T. Iversen, G. Lunde and K. Wülfert.—p. 1190.
Kidney and Ureter Calculi. E. Hjort.—p. 1203.
*Venereal Granuloma. E. Hval.—p. 1223.
*Subacute Inguinal Lymphogranulomatosis. E. Hval.—p. 1229.
*Primary Tuberculosis of Skin. G. Guldberg.—p. 1235.

Case of "Testicular Tubular Adenoma of Ovary."—Including Popoff's case, Berner's makes the sixth case of testicular tubular adenoma of the ovary reported in the literature. As in the cited cases of Pick, Schickele, Neumann and Strassmann the testicular portion of the tumor is sharply defined from the ovarian and of the same yellow color as the testis parenchyma, and the smaller, ovarian portion of the tumor rests almost like a hood on the testicular portion. The signs of hermaphrodism in this instance gradually disappeared after excision of the ovary. He is inclined to ascribe the testicular part of the tubular adenoma to a shifting in the person's chemical milieu (Goldschmidt).

Incidence of Goiter and Occurrence of Iodine in Veitestranden in Sogn.—Iversen et al. found an iodine elimination in twenty-four hours of from 154 to 345 γ in the urine of men in this isolated Norwegian village of 500 inhabitants, of whom about 70 per cent have goiter. The iodine concentration in the urine varied between 11 and 35 γ per hundred cubic centimeters. Earlier investigations in the goiter district of Sandsvær revealed an average iodine elimination of from 29 to 87 γ in twenty-four hours. In the goiter-free district of Vik in Sogn the average was 173 γ in twenty-four hours. The iodine content of the water in Veitestranden is neither remarkably high nor remarkably low. Samples of the soil gave iodine values of between 4 and 80 γ per hundred grams. The diet consists mainly of meat and potatoes with a little salt fish. The drinking water is poor. The cause of the goiter in the region is to date unknown.

Venereal Granuloma.—In Hval's patient, a sailor previously treated in several places for secondary syphilis, there was the typical picture of venereal granuloma. Microscopic examination of the granulation tissue revealed, partly in the large mononuclear cells, partly in groups outside the cells, the Donovan bodies characteristic of this disease. Infection had occurred in South America. Venereal granuloma has not before been observed in Norway.

Subacute Inguinal Lymphogranulomatosis.—In the four cases reported, microscopic examination of the lymph nodes disclosed a granulation tissue with abundant cells. There were numerous small, irregularly defined abscesses, often with central necrosis. The micro-abscesses were surrounded by a border of epithelioid cells with occasional cells with two or three nuclei and also occasional Langhans' giant cells. The abscesses presented a polymorphic picture. Hval says that diagnosis cannot be based on the microscopic changes alone. He considers Wilhelm Frei's intracutaneous antigen reaction of great value in the diagnosis. This reaction was positive in the four cases.

Primary Tuberculosis of Skin.—In Guldberg's patient, a boy aged 13, of a healthy family, there were continued granulation and suppuration in one of three wounds on the knuckles of the left hand following a trauma. A lymphadenitis developed in four or five weeks in the left forearm and two weeks later in the left axilla and gradually took on the picture of a tuberculous lymphadenitis with formation of fistula. Tubercle bacilli were demonstrated in the wound and in the abscesses of the lymph nodes. Clinical and roentgen examination of the lungs showed no signs of tuberculosis. The Pirquet test was positive three months after the occurrence of the wound. The case is considered as primary tuberculosis of the skin with regional lymphadenitis.

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